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IN RE  
**THEORETICAL DEPRECIATION**

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A Discussion of the Subject with an Analysis of a Paper by Dr. Weber, Statistician  
of the Public Service Commission for the First District, State of  
New York, entitled "Accounting for Depreciation."

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**PRESENTED FOR THE  
CONSIDERATION**  
of the  
**PUBLIC SERVICE COMMISSION**  
for the First District, State of New York  
by the  
**CONSOLIDATED GAS CO. OF NEW YORK**

---

*Approved by:*

The Astoria Light, Heat and Power Co.  
The Brush Electric Illuminating Co.  
Central Union Gas Co.  
Consolidated Gas Company of New York  
The East River Gas Company of Long Island City  
New Amsterdam Gas Co.  
New York and Queens Gas Co.  
New York and Queens Electric Light and Power Co.  
The New York Edison Co.  
The New York Mutual Gas Light Co.  
Northern Union Gas Co.  
The Standard Gas Light Company of the City of New York  
The United Electric Light and Power Co.

*Approved by:*

Westchester Lighting Co.  
Bronx Gas and Electric Co.  
The Brooklyn Union Gas Co.  
The Edison Electric Illuminating Co. of Brooklyn  
Kings County Lighting Co.  
The Flatbush Gas Company  
Jamaica Gas Light Co.  
Newton Gas Co.  
Richmond Hill and Queens County Gas Light Co.  
Woodhaven Gas Light Company  
Queens Borough Gas and Electric Co.  
Richmond Light and Railroad Co.  
New York and Richmond Gas Company

Prepared by JAMES E. ALLISON, Esq.  
of JAMES E. ALLISON & CO.  
Valuation Engineers  
St. Louis, Mo.



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Part I.

DISCUSSION OF PRINCIPLES.





## THEORETICAL DEPRECIATION.

### Part I.

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## DISCUSSION OF PRINCIPLES.

### Chapter I.

The Problem of Depreciation in Public Utilities as a part of the including problem of valuation, is essentially one of economics for it deals with those rules and factors of public regulation which affect ultimately the channels of investment of a very large portion of the capital of the country. It must be obvious that if the courts and regulating bodies so handle the problem as to deprive free and competitive capital of rewards such as would induce its entry into the public service, its flow in such channels for the future will cease or be very greatly curtailed and the results to capital already in the service will be a partial confiscation, for it will be held unwillingly where it would not have entered had it foreseen the treatment to be accorded it. It will, through governmental regulation alone, have been deprived of rewards sufficient to have induced it to have performed the services rendered to the public and its value to its owners and to any possible purchasers will have been reduced below the price at which free capital would have performed such service.

The true economic function of regulation, aside from the necessary police power to compel good and safe service, is to prevent the utilities from using their more or less inherent monopoly advantage against the consumers. But at the same time it must preserve the rewards necessary to induce the employment of free private capital. Otherwise we have a stoppage of the flow of necessary new capital and a coercion and confiscation of the capital already invested.

Every judge or commissioner can test the economic soundness of a theory by asking himself the simple question,

“Would I have been willing to furnish the necessary capital for this public service under the regulation I am imposing?” If the honest answer cannot be “yes”, then an economic principle is being violated and neither legislatures, courts nor commissions may long rule counter to economic laws without bringing consequences deeply injurious to the communities they are expected to serve.

Notwithstanding the apparent simplicity of the foregoing test of economic soundness, the problems involved in “valuation” (so called) for rate making or in the direction of accounts intended to show the proper “value” of a utility, have become so obscured and involved by partisan and crudely considered theories and they are, in their nature, so open to misunderstanding that even men of considerable intellectual attainment have and do now show confusion, hesitation and contradiction in their expressed opinions and rulings. The subject lends itself readily to specious reasoning and argument and the terminology is as yet so unsettled and so loosely used that sincere men frequently believe themselves to be widely at variance when, if correct and close definitions could be adopted, at least a part of their differences might disappear.

It is not to be wondered at, that judges, who are not specialists on the subject, and the commissions which, under our political system, are generally composed of men of necessarily short experience in the work, have in the past, made serious mistakes. The first work in this field was unavoidably crude and was largely influenced by the fact that there were many lawyers on the commissions whose legal education caused them to rely upon apparent precedents; without complete analysis as to the soundness of the principles underlying such precedents. Fortunately, precedent itself, is varying, and much that is sound can be cited in spite of the mass of decisions and opinions which will not stand analysis.



We have here in Dr. Weber's paper, presented in connection with what might appear to be a comparatively unimportant question in accounting, a problem involving in reality the right of the investors to millions upon millions of property placed in the service of the people of New York with absolute trust that it would not be confiscated.

We claim that the application of the doctrine of theoretical depreciation amounts to a virtual confiscation of our property, to a staggering degree.

We respectfully submit that the problem under discussion lies at the very foundation of all rate regulation. It is of such importance to the just treatment of the great interests, placed under the supervision and guardianship of the Commission, that we feel justified in earnestly requesting that all our arguments, evidence and papers, receive the personal study and most thorough consideration of each Commissioner; and further, that we be given an opportunity to reply to any arguments, evidence or papers, that may be presented in opposition to those submitted by us.

The arguments presented in Dr. Weber's paper invite serious consideration, because they are typical of that kind of superficial reasoning, specious argument and confused use of terms, which can, and often do, persuade those who lack the time, opportunity or inclination for real study of the subject; that it is an economic possibility to continue the use of private capital in the service of the public when the investor is faced by regulation, openly demanding that he be allowed to earn reasonable returns, not on his total investment in the public service, but on a very materially decreased amount. This doctrine is undoubtedly advocated by Dr. Weber's paper, although it is contrary to the clear provision of the statutes of New York which, in the Public Service Commission Acts, are as follows:

“In determining the price to be charged for gas or electricity, the Commission may consider all facts which in its judgment have a bearing upon a proper determination of the question, although not set forth in the complaint and not within the allegations contained therein, *with due regard, among other things, to a reasonable average return upon the capital actually expended*, and to the necessity of making reservations out of income for surplus and contingencies.”

It is difficult to understand how the plain words of this paragraph of the statutes can be misconstrued although we are aware that in spite of it, the Appellate Division of the Supreme Court of the state of New York, in the Case of the Kings County Lighting Co. decided May 9, 1913, passed on and approved a method of “depreciation” then recognized by the Commission, and similar to that now advocated by Dr. Weber.

The Court, however, ruled against the Commission on some other points, and the Commission appealed to the Court of Appeals; but the question of depreciation was not involved in this appeal.

Notwithstanding this the Court of Appeals went out of its way to express its views on the subject, and in the course of its opinion, it said:

“The cost of reproduction less accrued depreciation seems to be the one generally employed in rate cases. But it is merely a rule of convenience and must be applied with reason. On the one hand, it should not be so applied as to deprive the corporation of a fair return at all times on the reasonable, proper and *necessary investment* made by it to serve the public, and, on the other hand, it should not be so applied as to give the corporation a return on improvements made at public expense which in no way increase the cost to it of performing that service.”

This is the attitude of the highest court. Technically of course it has not the force of a direct decision of the question, because the question was not actually before the court. But the evident opinion of the court and the very pointed quota-



tion of the plainly expressed provision of the statute by the court should preclude the statement by honest minded men that the courts of New York have finally settled the question of theoretical depreciation in favor of that fallacious and destructive doctrine.

Mr. Jacob H. Goetz, of counsel to this Commission, in a very able paper presented at the conference on Valuation in Philadelphia, in November, 1915 has this to say in reference to the statute and to the opinion of the court in this case.

In a foot note at page 12, of his paper as published by the Law Publishing Co., Mr. Goetz says:

“The N. Y. Public Service Commissions Law, Sec. 72, requires the Commission in determining the price to be charged for gas and electricity to have ‘due regard among other things to a reasonable average return upon capital actually expended and to the necessity of making reservations out of income for surplus and contingencies.’ *It is obvious that the use of capital actually expended as a basis is not equivalent to the use of reproduction less depreciation.*”

We have introduced here at the beginning of our argument, the New York statute, the opinion of the highest court of the state and the opinion of a member of the legal staff of this Commission, in order to bring before the minds of the Commissioners the fact that the question is not conceded to have been settled rightly by the appellate court in the Kings County Case, and we ask again for that independent study of the problem which its importance deserves.

In another part of our presentation of the case, we will show numerous authoritative decisions, both of courts and commissions, which are adverse to the doctrine advocated in Dr. Weber's paper.

One of the many difficulties which have stood in the way of the proper understanding of the depreciation problem is the fact that some companies mistakenly believe that their present interests lie in adopting the largest possible deprecia-

tion charge and, where the plant is growing rapidly, in the consequent accumulation of a permanent fund in the future. They of course object to the deduction from their investment on account of a hypothetical fund assumed to have been accumulated in the past; but the two positions do not accord, and they have, as a result, not been able to impress the truth of their arguments nor their own sincerity upon their judges.

There seems to be a mistaken idea among certain utility managers that they can have their cake and eat it too. They assume that in some way this extra and useless charge in the rate can be turned into profits or dividends. Nothing could be more mistaken, unless they also assume that commissions in the future are to become extraordinarily generous toward the corporations.

The laws of most of the states having utility commissions provide that accumulations from depreciation charges cannot be expended except by consent of the commissions, and that all earnings of such a fund shall go back into the fund. Provided that the fund cannot be used for replacement, it can be of no benefit to the property or to its owners and its ownership is, for all practical purposes not in the utility corporation, but in the public as represented by the commissions. Yet this blunder is persevered in by some utility managers and, for the sake of an illusion, they persist in admitting the erroneous and ruinous principles of theoretical depreciation, generally contenting themselves with an attempt to reduce the amount of the confiscation of their property under the theory, but not fighting as they should the wrong economic principles underlying the confiscation. It is no wonder, with many of the commissions schooled in these mistaken theories and many of the companies admitting them in principle, that they are hard to eradicate and that progress toward the truth is much slower than it should be.



## Chapter II.

The claims of the advocates of theoretical depreciation can, we believe, be succinctly stated as follows:

There should have been set aside in the past from charges on the consumer certain sums which would now appear collected in a fund, and the amount of such fund should be deducted from the investment in the service of the public, so to arrive at the amount of capital upon which the owners of the utility shall be allowed to earn a reasonable return.

The details for the calculation of such a fund and the reasons for setting it up are varied and various, but the above statement is the result of the doctrine.

This summing up of the doctrine of theoretical depreciation suggests two questions.

1st. Should the fund have been collected?

2nd. If collected, should the amount of it be deducted from cost or investment, to determine the capital upon which a return shall be allowed?

Let us analyze the first question.

If such a fund should have been created in any utility property, it could have had but three purposes:

1st. To form a reserve to be drawn on for replacements.

2nd. To counteract any lessening of value in the property as a whole.

3rd. To buy a part of the property for the future consumer out of charges assumed to have been paid by past consumers.

We believe that it can be proven that such a fund can properly serve none of these three purposes and that therefore it should not have been collected or set aside.

Let us first examine such a fund in relation to the purpose of forming a reserve for replacement.

Even among men who have given the problem some superficial study, there is a general misconception of the amount of necessary accumulation to enable a utility of any considerable size to meet all the requirements of replacement.

Of course, if a plant consisted of only one item and could all go out at once, there would be a necessity at the time of its going out to raise in some way or to have on hand a sum equal to the cost of a new plant. And some misguided individuals even now have the idea that a utility plant as a whole has a definite life and will eventually all go out at once in spite of replacements.

If a plant consisted of only two equal items of different lives, there might be a necessity of raising at one time a sum equal to 50% of the investment. If it consisted of four equal items of different lives, there might be a necessity of raising 25% at one time.

It should be clear that with the great number of items composing a large utility plant, there can never be any large percentage of the investment required at any one time to meet the replacements. It might be said that there could be a possible coincidence of the necessity for replacement of a number of important items. This is not probable and hardly possible under intelligent management where repairs and maintenance are properly met.

Obsolescence and inadequacy are the controlling causes of abandonment of equipment, and obsolescence and inadequacy are conditions in which the time of replacement to meet them is more or less flexible. There is nothing more ridiculous in the whole gamut of assumptions used in reasoning on theoretical depreciation than the one which definitely fixes the life of items of equipment where that life is controlled by obsolescence or inadequacy. Any management of a large utility, if only half way intelligent, can so arrange its replacements that large expenditures, except in cases of violent suppression, need not coincide and that there shall

be no necessity of an accumulation to meet them which will amount to any considerable percentage of the investment.

The fact is that in plants of any size and age, there is both theoretically and actually a normal condition in which the replacements come along with comparative evenness and where there can be no possible use for a so-called depreciation (actual replacement) fund of any considerable amount.

This fact does not seem to be known in many quarters where it should have been fully understood. The superficial observer often confuses in his mind the large requirements for improvements and expansion with the comparatively small requirement for replacement of the capital represented by equipment abandoned at the time of the improvement or expansion.

Even some of the arch apostles of the "theoretical depreciation" doctrine have been forced at times to acknowledge this fact of the normal state of a property. In his Report on the Investigation of the Chicago Telephone Company, submitted to the committee of the city government, Prof. Edward W. Bemis, in speaking of depreciation, said:

"In a new plant which has not yet reached its 'gait' of renewals, a depreciation reserve appears desirable. In the case of a company as old as the Chicago Telephone Company, the time may soon arrive when renewals will take sufficient care of depreciation, as in the case of our older gas companies and railroads."

Mr. Halford Erickson, chairman of the Wisconsin Railroad Commission, another of the well known advocates of the theoretical depreciation doctrine, says in one of his published papers:

"The large plants or combinations of plants including railways, however, are often able to so adjust their renewals that the charges for the same remain somewhat more constant from year to year. When this is the case it is not always necessary to provide for depreciation in advance in order to equalize the charges to the operating expenses or to keep up the service."



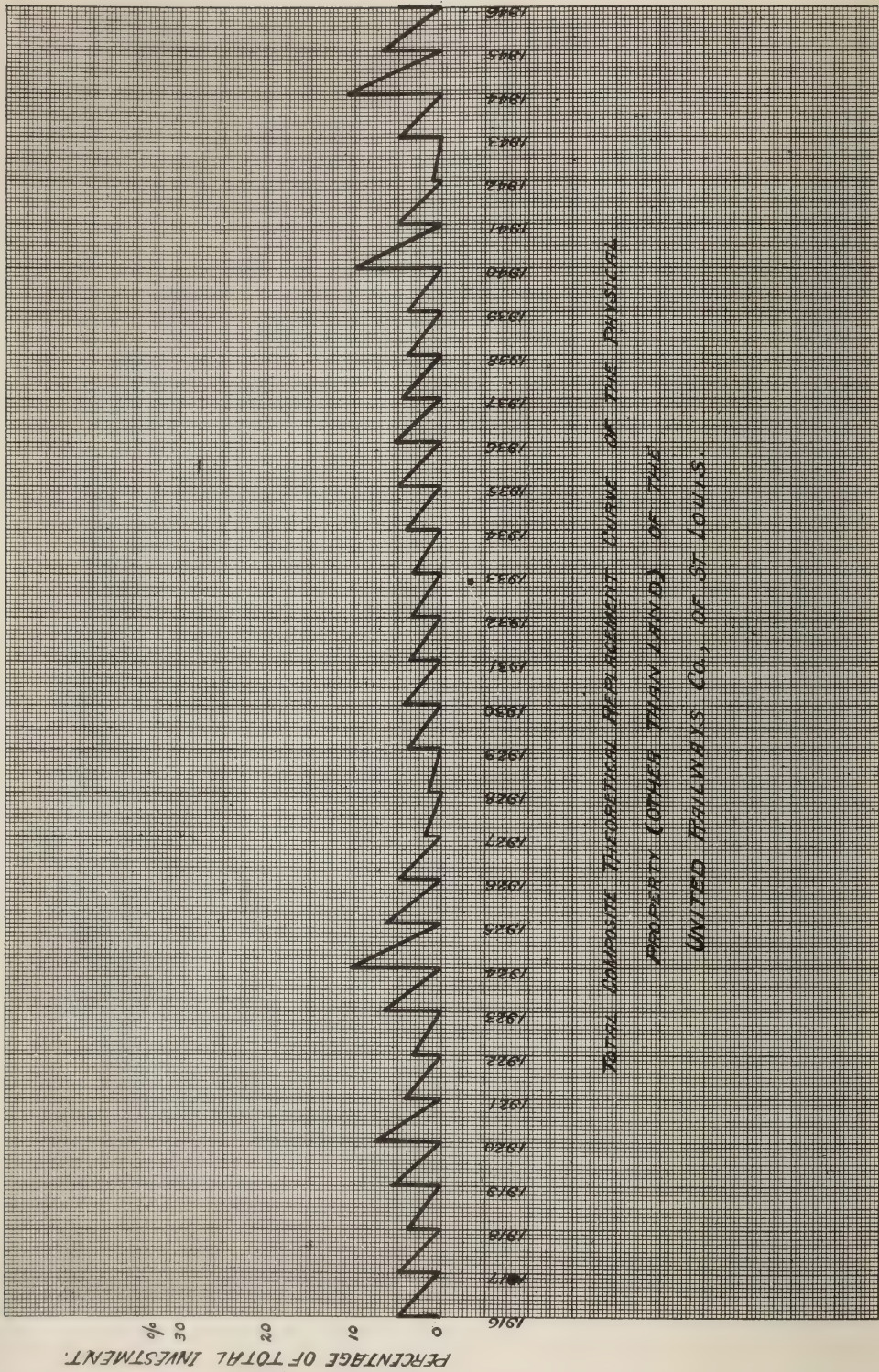


Diagram 1.

In the context of his paper, Mr. Erickson goes on to argue, as no doubt Mr. Bemis would also do, that there is some form of disappearance of "value" from the plant, owing to the abstract element of lapse of time, which should be provided for by a fund. This is an error, which we will discuss later, as it falls under another head of our analysis of the possible uses of a depreciation fund.

We have said that even theoretically the renewals or replacements in properties of any size, which have reached a normal state, can be shown to have no need of a large accumulation in a replacement reserve.

Diagram 1, shows the estimated future requirements for replacement in the property of the United Railways of St. Louis. The height of the vertical lines in the curve show the percentage of the whole investment which might be required in any year if the actual life of the different classes of equipment coincided with the lives usually assigned.

It is seen that at no point does there appear a necessity for a large reserve. Where there is a high point in the curve, it is caused by the coincidence of the estimated termination of life of a number of items.

Even assuming that the astrologers and prophets who pretend to foretell the exact date of the death of equipment and plants are approximately correct, it can hardly be denied that a management endowed with ordinary intelligence could prolong the life of some items of equipment and perhaps anticipate the abandonment of others, so as to make the requirements of the replacements assume a still more regular line than is here represented.

Correct reasoning on the probabilities of future replacement requirements must take into account the power of the management to counteract the effect of a coincidence of numbers of items of appreciable size going out together. There remains then, as an element threatening the comparative evenness of replacement, only the abandonment of certain large



items. Take such a thing as a building, a gas holder, a set of large prime movers or a battery of boilers. The abandonment of any one of these items in a very small plant might represent an appreciable per cent of the investment; but as we deal with larger and larger properties, it is seen that there is no single item or set of items of equipment, which must all go out together, large enough to greatly disturb the per cent relationship between the investment and the annual or short period requirements for replacement.

Unfortunately, the members of the staff to whom such problems are intrusted, on many of our commissions, are men whose careers have been that of abstract theorists, and by this term we mean men who may have the ability to use deductive reasoning but who entirely neglect or have not had the opportunity to inform themselves as to the truth and accuracy of the assumed facts from which their theories are deduced.

As an example of the mistaken assumption of facts upon which such men base their deductions as to the property of the utility companies, let us instance the treatment which the orthodox theoretical depreciationists would accord an installation of cast iron gas or water mains.

They would assume, if we had a one million dollar installation in 1900 and another one million dollar installation in 1910, that each of these installations would have a definite life. They might take fifty, seventy-five or one hundred years as the assigned life. But the assumption would be, if we use the fifty years life for illustration, that in the year 1950 the company will need one million dollars for replacement, and that in the year 1960 it will need another million for replacement. They would assume that in the meantime before these dates, a fund would be piling up to meet these future expenditures.

Now, what are the facts in the history of such an installation of cast iron water or gas mains? In the first place, there

is no definite life to cast iron pipe. Under favorable conditions, part of it may last for hundreds, or for all we know thousands of years.

Cast iron pipe has not been used as a material of construction for a great length of time, as compared to such materials as stone, brick or cement, but we have records of its existence in a perfect state of preservation for the full length of time since its adoption, as shown by the following few cases cited.

Reprinted from The Gas Record, Chicago, March 8, 1916.

#### Historical Section of Cast Iron Pipe.

"A section of cast iron pipe unearthed just outside the Davis Street building during recent alterations was found to be in excellent condition and is shown herewith. Concerning this pipe, George Beadenkopf, chief engineer of the Baltimore Consolidated Gas, Electric Light and Power Co. says:

"The pipe, when taken up, was in first class condition. There were absolutely no signs of deterioration, inside or outside. The inside of the pipe had a hard, smooth, thin coating of tar, which was likely deposited in the pipe at the time the plant was in operation, some sixty years ago. The fracture of the iron shows it to be good metal. My belief is that the pipe has been in the ground eighty years or more, and I think it is a fine example of the lasting qualities of cast iron pipe. I am unable to say who made the pipe, but believe from what I have heard from older men who were connected with the gas industry in Baltimore, that the pipe was imported from England, as was also other parts of the gas plants first erected in Baltimore'."

Reprinted from a Paper Published by

The Casey-Hedges Co.,

of

Chatanooga, Tenn.

"The old Astor House, one of the best known hotels in the world, during the century past, was taken down in 1914 to make way for a larger building. The drainage and vent



lines were found to have suffered no appreciable deterioration after 80 years service. They were cast iron soil pipe."

Reprinted from

"Pipe Economy—Clow Foundry Products"

By

James B. Clow & Sons, Chicago.

"In this country the oldest record of cast iron pipe in our possession is that of the installation at New York in 1833, which is still in successful operation. There are no instances of Cast Iron Pipe having to be replaced on account of corrosion—the only pipe with such a record. In Europe we have many records—dating back to 1685—of Cast Iron Pipe lines which are still in service. Records then certainly speak loudly for Cast Iron Pipe.

"Besides this, Cast Iron Pipe, from its chemical composition, can be expected to last very much longer than any other pipe. Cast Iron Pipe is only one degree removed from the ore which has existed in the ground in its present form for untold ages. \* \* \*

"When corrosion attacks Cast Iron it rusts uniformly and forms a rust coat which prevents further corrosion. It has been estimated by excellent authorities that under normal conditions, Cast Iron Pipe will lose by rust 1% in 10 years, which would make its useful life somewhat over 1000 years."

Reprinted from "Life of Cast Iron Pipe."

United States Cast Iron Pipe and Foundry Co.

General Catalogue

1914

At page 16 says:

"At Marly, near Paris, upon one of the arms of the River Seine, there was built in the reign of King Louis XIV a most interesting and remarkable pumping plant to supply the lakes and fountains surrounding the palace of Versailles.

\* \* \* \* \*

"Of great interest to the pipe-founder is the fact that the piping from the wheels to the aqueduct and the distri-

tributing mains at Versailles, with a length of over fifteen miles, were of flanged cast iron pipe about one meter long. Records, duly certified, show that these pipes were laid from 1664 to 1686, and they are still in use today, some of them after 250 years of service. While there are many cases of the use of cast iron pipe on the Continent through the eighteenth and beginning of the nineteenth centuries, this is believed to be the earliest proven by authentic records. In 1901 an officer of this Company saw repairs being made to one of the lines leading to the fountains, which it is said was laid in 1685. While at several joints the wrought iron bolts had been eaten through, the pipe itself was but little rusted outside and a fracture due to subsidence showed inside a clean pipe of good gray iron—the natural result with good water and subsoil conditions, even when as in this case the pipe is without artificial protection or coating.”

It is not our purpose here to make an argument to prove the long life of pipe in a gas or water works installation; but these instances go to show that there are no destructive forces exerting themselves on the whole line of a pipe installation and which will inevitably produce destruction on the whole of such installation at once, in any given length of time.

The facts are that the destruction of cast iron pipe or the causes of its removal are sporadic in their nature and that the element of age is not a controlling factor or in itself a factor at all.

Referring to our two installations of pipe of one million dollars each, what will actually happen is that in certain spots there will develop electrolytic or soil conditions, which will cause certain sections of the pipe to go out, but these conditions have nothing to do with the time the pipe has been in. In some spots the destruction may begin immediately and rapidly work to a replacement, in other spots the destructive conditions may develop later, but they may begin on the newest pipe instead of the oldest. Given time for the destructive forces to complete their work in the spots where the conditions develop, the age of the pipe has nothing to do with its destruction. A certain section of pipe may



begin to deteriorate tomorrow or perhaps not for twenty or for one hundred years, or it may never be destroyed as far as we can foretell.

The same arraignment of facts can be shown as to the removal of pipe for inadequacy or obsolescence (if such a term can be used in connection with pipe). In our two installations of one million dollars each of pipe, we will find that in certain sections of the system they may become, on account of changes in the demand, too small for the service or there may be changes in pressure, etc., etc., which will require replacement in certain locations, but these replacements will bear no relation whatever to the age of the pipe. They depend upon conditions entirely independent of the date of installation of the particular pipe affected and may first affect the more recently installed pipe in preference to the older pipe. In short, there is no logical relationship between the age of water and gas mains and the time at which they must be replaced.

In our example of the two one-million dollar installations, the forces of destruction, whether from corrosion or inadequacy, are not going to politely await the estimate of the accountant or engineer and allow the installations to remain intact for fifty years in order that the "fund" may accumulate. Some of that pipe is going to be attacked with considerable promptness and renewals will soon begin and will continue with approximate regularity. Parts of the system will be renewed; but unless under very unusual circumstances, it will never occur that all or even any considerable part will become a loss at one time.

This, of course, means that the replacements will be drawn continually from the revenues of the company and that there will be neither need nor opportunity for the collection of a so-called "depreciation fund", whose principal use, and in fact the very advocacy of which, is to give an excuse for declaring that the investor is not entitled to a return on his entire investment.

These plain primer-school facts, lying open upon the face of an inquiry into this history of cast iron mains, seem to have entirely escaped the observation of those intrusted by some of our commissions with the study of the problems of depreciation and depreciation funds.

This statement of the facts in the history of a system of cast iron pipes brings out the singular lack of simple and straightforward thought in much of the argument for theoretical depreciation, and also illustrates by example the truth that replacements depend on other conditions than age and that in large properties there is a constant tendency toward evenness of replacement which prevents the necessity of accumulations in a fund to any considerable percent of the investment, if at all.

There is an acknowledged law resulting from the intelligent analysis of utilities, which may be called "The Law of the Trend Toward Level Replacement."

This law is known to many and acknowledged even by such eminent advocates of theoretical depreciation as Dr. Bemis and Commissioner Erickson. With such acknowledgements that replacements in large properties can be taken care of from the annual replacement charges (misnamed depreciation charges) without the necessity of any large or permanent fund, it becomes evident that replacement can not be the purpose of a depreciation fund, and if a fund is created and is assumed to be permanent, that in itself is proof that it is not to be used for replacement and that replacement cannot be the useful purpose of its creation.

Having proven that of our three hypothetical purposes for the collection of a so-called depreciation fund, replacement can not be one of them, we come to the second hypothetical purpose, viz.: To counteract any lessening of value in the property as a whole.

## Chapter III.

The second hypothetical use for a permanent accumulation, called a depreciation fund, i. e. that it is to be used to offset a diminution in value of the investors capital in the service of the public, is the use which the name given to the fund would indicate to be its intended purpose.

To discuss such a problem in an intelligent manner it is absolutely essential to adopt a definite meaning for the words employed.

Unfortunately, in most discussions of valuation and depreciation problems, we find a woeful lack of definiteness in the use of terms, and the paper under consideration is no exception to this rule. Nearly all of the papers and discussions of the subject show the use of the word "value" sometimes in its true meaning, sometimes as a term applied to cost, and sometimes as a term employed in an empirical and arbitrary measurement of an assumed relation between cost and age. We find the word "depreciation" used sometimes as indicating the amounts set aside or which are assumed should be set aside to make replacements, sometimes in an erratic and false sense as having something to do with lapse of time in service, and sometimes in its true sense.

The authorities on the meaning of these two words are the lexicographers and the economists, and fortunately they are in exact agreement.

The Century dictionary gives the following definition of "value":

"1. Worth; the property or properties of a thing in virtue of which it is useful or estimable, or the degree in which such a character is possessed; utility; importance; excellence; applied to both persons and things.

\* \* \* \* \*

"3. The importance of a commodity measured in other commodities (commonly represented by money) for which



it can be exchanged in open market; the rates in which one thing can be exchanged against others; the command which one thing has over others in traffic; in a restricted (and the popular sense), the amount of money for which a thing can be sold; price.

“In political economy, *value* is distinguished from *price*, which is worth estimated in money, while value is worth estimated in commodities in general.

\* \* \* \* \*

“4. Price equal to the intrinsic worth of a thing, real equivalent.

\* \* \* \* \*

“To Value.

1. To estimate the value or worth of; to rate at a certain price; appraise; as, to value lands or goods.

The first definition of value given under No. 1 is that of an objective value or unmeasured value. No. 2 in the definitions in the Century dictionary is of the same character and is omitted here. It is evident that neither definitions No. 1 nor No. 2 can be applied to a value measured in money.

### Definition of Value

from

The Principles of Economics by Prof. F. W. Taussig.

“The value of a commodity means in economics its power of commanding other commodities in exchange. It means the rate at which the commodity exchanges for others. If a bushel of wheat can be exchanged for a large quantity of other things—for many pounds of iron, many yards of cloth, many ounces of salt—its value is high, the possessor of it can procure many of these things. If a bushel of wheat can be exchanged for but a few pounds of iron, few yards of cloth, few ounces of salt, its value is low; the possessor of it can procure few of these things. It is immaterial that the exchange does not take place directly, but by the process of first disposing of the wheat for the medium of exchange—money—and then procuring with the money the iron, cloth, salt, or other desired commodities. The result of the double

operation is the same as if the exchange had taken place by direct barter. Only it is reached by a more convenient method.

“The value of a commodity, thus conceived, is *its value in exchange*.

\* \* \* \* \*

“For the purpose of economics this latter sense, *exchange value*, is the most important.

\* \* \* \* \*

“In the sense which we have adopted, *value means simply the actual rate in exchange, and there can be no value other than that registered by sales and exchanges*.

\* \* \* \* \*

“For the purpose of economics, one meaning or definition must be selected, and held to with care. In the following pages ‘value’ will be used strictly in the sense which economists have adopted for it—*a relation in exchange*.

\* \* \* \* \*

“For the purposes of an orderly and systematic exposition of economic principles, we shall assume for the present stability in general prices; hence that a change in the price of an article signifies a change in its value.”

### Definition of Value

from

The Outlines of Economics by Prof. Richard T. Ely.

“The meaning and Significance of Value.—One of the most fundamental of all economic problems relates to the ratios at which goods are exchanged for one another. These ratios are called *exchange values*. The exchange value of a good is the quantity of other goods that can be obtained for it.

\* \* \* \* \*

“It is, however, customary today to *express the value of all commodities in terms of one other commodity, money*. Price is exchange value expressed in terms of money.”

These authorities show that the only true definition of a measured value is that of exchange value and that the only definition of a value measured in money is the price which a commodity will command in the market. If then we are to use our terms properly and definitely, we must assume that the value of a utility, as a whole, can be nothing but its probable price on the market. The market for public utilities is of course one of investors and the value must be measured by what investors would give for the property.

A market might be cited in the municipalities, but in that case the municipality could not give less, without confiscation, than would be given by another purchaser, which brings the measure of value back to the investor.

Having established that the true value of a utility is measured by what would be given for it by investors and taking for granted the evident truth that investors put their money into public utilities primarily for the sake of the return they will be able to obtain, it follows that the controlling and almost the only factor establishing the value of a utility property is its capability of producing earnings.

Having said so much to emphasize the only and simple meaning of the word "value", let us now define or have defined for us, the meaning of the word "depreciation".

The Century dictionary gives the following definitions of depreciation:

"1. The act of lessening or bringing down price or value. 2. A fall in value; reduction of worth. 3. A belittling or running down of value or merit; conscious undervaluation or under-estimation of the merits of a person, action, or thing; unfavorable judgment or scant praise; as; "He is much given to the depreciation of his friends".

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"The verb to depreciate is also defined as follows:

"1. To lessen the value of; bring down in value or rate: as, to depreciate goods, railroad stock.



“2. To undervalue or underrate; represent as of little value or merit, or of less than is commonly supposed; belittle.

\* \* \* \* \*

“11. (intrans) To fall in value, become of less worth; as, a paper currency will depreciate unless it is convertible into specie; real estate is depreciating.”

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The conclusion from these definitions is that the noun “depreciation” means a lessening in value, and a lessening in value as applied to utilities means a lessening in exchange value or a lessening in the price which would be paid for the utility by investors.

Let us inquire then, what are the causes which might bring about a lessening of earnings and consequent lessening of value. First and foremost is a falling off of business or a reduction in rates; either of these causes is a potent factor in the lessening of value, and consequent depreciation. The problem in this case, however, is not a depreciation from lowering of rates or falling off of business, but an assumed depreciation said to be due to changes in theoretical, abstract and erroneous factors of value assumed to exist in the physical plant of the utility.

In a public utility, we have an example of the investment of money in a large collection of instruments to perform certain services. These instruments each separately continues to perform its service under proper maintenance and repair in just as efficient a manner up to the day of its removal or abandonment as at its installation; and considering the plant as a whole, when well managed, each particular unit (unless replaced while still in perfect operating condition, on account of inadequacy or obsolescence) is replaced when it begins to give a service appreciably less in efficiency than it gave at the beginning of its career. Then it is seen that so far as its contribution to the value of the plant is concerned, each unit contributes constantly its quota to that value; and the mere fact that there has been a lapse of time since the installation of the unit, does not destroy or lessen its contribution to the value of

the utility working as one single aggregate machine, the sole purpose of which is to give service and by service to be able to earn returns.

It is true that if provisions were not made out of gross revenue for the replacement of the units as their lives expire, there would be a lessening in value, due to the fact that the investor, familiar with the plant, would foresee a lessening of efficiency and an ultimate wreck of the utility, which he could not correct or prevent without sacrificing the very return which causes value to his investment and to the utility as a whole.

But one of the few well established principles of public regulation is the right of the investor to charge in his rate an amount which will enable him to make these replacements. This right, when it can be exercised, assures a continuous ability of the physical equipment of the utility to perform its function in the earning of returns and prevents any loss of value in the utility, except such loss as comes from causes entirely outside the physical plant. In other words, it prevents depreciation or loss of value in the physical plant, *per se*, or any loss to the utility which might be caused by the physical plant.

If the replacements prevent a lowering of the ability of the plant to earn returns and hence prevent a lessening of its contribution to the exchange value of the utility as a whole, what excuse is there to assume that there is any lowering of value? What excuse is there for applying an assumed and artificial theory for reducing the true value? And what excuse for building up a fund to be used for the purpose of off-setting the results of the application of such erroneous and false calculations?

It is not contended here that the exchange value or only real value of a utility should be the figure to be taken by regulating bodies in their adjudication of rates or for other purposes coming within their powers and duties. Such an assumption would lead to the conclusion that there must be no

change of rates or earnings. The regulation of public utility earnings through the regulation of rates implies a changing and adjudication of values, supposedly in accordance with justice. Where earnings and consequently values are unjustly high, they are to be reduced and where they are unjustly low they are to be increased, but values being the result of earnings can not be taken as a base.

This is so self-evident a truth that all the loose talk about "present value," "fair value," etc., etc., should not be permitted to bewilder or mislead any one.

In dealing with the idea of value of a utility, the egregious mistake is commonly made that by obtaining the value (or attempt at value) of the separate parts of the whole plant and then adding them together, a result is arrived at which represents the value of the whole utility. Weak reasoners accept this immediately by quoting the inapplicable maxim that the sum of the parts must equal the whole.

It is true of course that when all the different parts of a utility are properly located and connected, we have the whole of the physical plant of the utility. But it is not true that segregated and individual exchange value of the different parts will, when added together, equal the exchange value of the utility as a whole.

The factors which establish the exchange value of a piece of equipment, when treated separately from its place in the utility, are in no way related to the factors of value which give exchange value to the utility as a whole. The exchange value of the plant as a whole is fixed by its earning power and that is almost the sole factor which appeals to the market for utilities, while the actual exchange value of the parts by themselves is determined by the demand and supply for second-hand equipment. In fact, no second-hand exchange values are obtainable. Hence the assumption of a pseudo second-hand value based on remainder of life.

In dealing with actual values, we are no longer inside the boundaries of pure mathematics, and the mathematical axiom



that the sum of the parts equals the whole does not apply. The only way the axiom can apply is to assign values to the parts in accordance with each part's proportionate usefulness in its place in the whole utility as a producer of earnings.

Practically, this is an impossible thing to do and would be useless if done. The conclusion must be that the analysis of a plant by items is useful only in ascertaining *investment*; there can be no correct separate *values* assigned to the items which will represent their true value as parts of the utility as a whole.

There is a lamentable lack of appreciation among valuers of the relation of so-called functional depreciation to the separate items and its entire absence of relation to the plant as a whole. It is due to the same inability to reason on anything larger than one machine or one class of equipment. The functional depreciation in a machine may be defined as the calculation of its expired life as compared to its estimated life, and the application of this calculation to cost, to obtain a so-called but pseudo "value". \*

Now, in applying functional depreciation to a plant as a whole, we are wrongly dealing with the units of equipment in the same relation as are the bolts, pulleys, bushings, etc. in their relation to the unit. If the units in the plant as a whole should be replaced with exactly the same kind of units as are discarded, which is the case in replacing the parts of the unit itself, it would seem that the plant as a whole would become obsolete or inadequate, and would have an end to its life just as the units have ends to their lives in actual practice through obsolescence and inadequacy. But, in replacing the units of a plant, we are not compelled, as we are by the rigidity of the machine in replacing its separate parts, to put back the identical article which is worn out. Replacement should be understood as replace-

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\*Note—A narrower meaning sometimes applied to the term Functional Depreciation considers only the life expired due to the approach of obsolescence or inadequacy. This is not capable of estimate.

ment of capital and not as replacement in kind. In replacing the units of a plant as a whole, obsolescence and inadequacy are counteracted by changing the type or capacity of the unit. In consequence of this flexibility in replacement, the plant as a whole does not come to an end, and all the forces working for the destruction of the usefulness of the plant are thus counteracted, and its value wholly preserved, so far as physical equipment is concerned.

It should therefore be seen that while functional depreciation may be reasoned into a piece of machinery which will ultimately disappear, it cannot properly be applied to the plant as a whole. Functional depreciation, even as a theory, rests upon an assumed definite end to the life of the thing depreciated. It can not be applied to a utility which has no definite or foreseeable end.

The advocates of theoretical depreciation must concede that the *value* of the utility as a whole, since it depends upon earnings, can not be used as a base for regulation; and yet they insist that the sum of their interpretation of the values of the separate parts be used as a substitute.

We say *their interpretation* of the separate values of the separate parts advisedly; for the truth is that this interpretation of values does not correspond to the real or exchange values of the separate items of equipment. The separate items, as soon as they are installed, become second-hand, and their values when separated from their share in the value of the utility as a whole become merely second-hand values.

Mr. John Bauer, an economist, and at one time, we understand, a member of the staff of this Commission, in a footnote attached to a paper published in the American Economic Review of Sept., 1916, says:

“One interpretation of value as used by the courts might be the amount that the individual units of the property sold separately would bring on a free competitive market. This would be not the value of the property as a going business, but as dismembered and sold in parts

at fair market prices. No such valuation could be made practically, for there is no market through which prices for various articles could be determined."

How any court could expect anything but universal financial disaster if it adopted an interpretation of value so absurd, or how any one with the least atom of fair play in his composition could advocate such a method of arriving at an earning base for a utility it is hard to understand.

The last sentence in the quotation, however, truly states a difficulty in the way of the adoption of the method.

But whether it was its absurd unfairness or the difficulty of the work which deterred them from swallowing this method whole, the theoretical depreciationists have taken only a part of it and have adopted a bastard method of assigning their estimates of separate values, which, when the separate figures are added up and called the "*value of the plant*," results in a mongrel estimate, which can be called neither a value nor a *cost*, nor a *just amount* which would have caused the investment and performances necessary to have had the public served by the utility.

In using their piecemeal method of adjudicating the capital entitled to returns in a utility, the theoretical depreciationists will first assign a definite life to a piece of equipment. The acknowledged fact that in most cases the life of equipment can not be foretold even within a wide range does not deter them in the least. They cheerfully manhandle an investor's capital on an assumed life of 15 years, when it may just as well be 30 or 40 years. Such small details do not bother them. They are chasing a theory and facts are of little importance.

Having arbitrarily assigned their life to the item, they find out how old it is. The life assigned is, say 10 years. It is found to be five years old. It cost one hundred dollars. The result to them is conclusive. It is worth just 50 dollars. Of course the truth is that it may be worth much more or much less than



fifty dollars, when separated from the utility. As a part of the value of the utility, as a whole, its separate value can not be estimated.

Nevertheless, it is solemnly assumed that the sum of such figures give the *present fair value* of the property, and that the value of the investment *has depreciated* the difference between its cost and this result.

Let us examine briefly the process by which a depreciated value (so called) is arrived at under the workings of theoretical depreciation.

First, an investigation is made of the age (not the condition) of each item or class of items of equipment in the plant. The result, when these figures are consolidated, is a composite age in the whole plant.

\*Next, an estimate of the expected useful life of each item or class of items is made, and this results in a composite estimated life of the whole plant.

Next, the composite age is deducted from the composite estimated life and the result is a composite remainder of life, expressed in a percentage of the full estimated composite life. This percentage is then applied to a cost of the depreciable property, and the result is said to be the present value.

Whatever the order of the proceeding, the calculation can be reduced to the above formula.

A sufficient bar to the use of such a method is the fact that there is in reality no such thing as a composite life of a utility. The life of a going plant extends on indefinitely into the future with no determinable end, and to base a calculation of value upon the assumption of a remainder of life for the utility as a whole, is in the face of this fact an absurdity.

It should not need argument to show that, if renewals are made when necessary, a plant has no determinable life, and that, if there were perchance to be a theoretical per cent deduction for age, this deduction would be infinitely small

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\* Note On account of the element of varying costs the composite age and life are expressed in dollar-years. But the effect is the same. For simplicity of illustration the factors are here spoken of as "age" and "life".

applied to the really almost infinite expectation of the life of the utility.

This argument has sometimes been met by the advocates of theoretical depreciation with the statement that they are not considering renewals but only the existing physical property. But if the stand is taken that renewals are not to be considered, then the useful life of the plant is not the composite remainder of life as estimated, but its life will only extend to the time when the first vital part goes out. In other words, following theoretical depreciation to its logical conclusion, very few plants would have a value much above scrap.

So far as age and the different parts go, they produce a normal condition of the plant as to replacement, which normal condition is the only kind of plant possible of continuance and the only kind of plant which the investor's money can permanently produce.

As the minds of the advocates of theoretical depreciation seem to confuse the nature of the item of equipment with the entirely different nature of the whole utility, let us illustrate by supposing, we will say, an engine of such a nature that not only repairs can be made but also obsolescence and inadequacy be counteracted piecemeal when required. We think it will have to be admitted that such an engine would last almost indefinitely and would not depreciate provided its parts were properly renewed. Utility plants of any size are exactly similar to such an engine, and so long as they are fully kept up they do not depreciate in real value.

Much of the confusion of thought connected with the depreciation problem has been brought about by the question of charges and funds labeled by accountants depreciation funds or depreciation charges. They should be called replacement charges or replacement funds, for that should be their purpose.

When replacement is fully provided for, depreciation is counteracted, and does not exist, and so-called depreciation

(actually replacement) charges should be made in rates with the sole purpose of counteracting or preventing depreciation by replacement.

By the foregoing pages, it should be clear that in a plant in which repairs and maintenance have been kept up to the maximum and where replacements have been fully made or provided for, there exists no cause, within the plant, for a lessening of value in the utility.

In other words, under such a condition, any lessening of value or depreciation can only come from causes outside of the physical plant. There can therefore be no proper purpose in accumulating a depreciation fund to meet a lessening of value in the plant.

It will hardly be conceded that, under ordinary circumstances the consumer should be expected to provide a fund to anticipate a lessening of value which might be caused by bad management or even by a falling off of business. There then remains but one other purpose for which it might be useful in connection with a lessening of value and that is to compensate the investor for an arbitrary governmental reduction of the earning power of his capital below the amount for which he would have performed the service to the public.

This is an attempt to make one blunder compensate for another. And we maintain that such is not a proper or rational purpose for the establishment of a fund.



## Chapter IV.

Let us now take up the *third* hypothetical use for a so-called depreciation fund, viz.: To buy a part of the property for the future consumer out of assumed charges upon the past consumer.

It is agreed by all intelligent students of the problem that the calculation of a theoretical depreciation fund, when applied to the future of a supposedly new plant or when theoretically projected over the past of an existing plant, will produce a fund which can not be used for replacement.

It has been shown that this fund can not be needed to compensate for a lessening in value of the utility unless that lessening in value has been arbitrarily caused by the regulating authorities for the very purpose of finding a use for the fund. Then, the real result of such accumulation, if the amount of it is deducted from the earning capital of the company, is to effect a partial purchase of the plant for the benefit of the consumer.

If we imagine a case applying wholly to the future, where there might be a plain agreement between the company and the consuming public that there should be a purchase of a part of the plant by the consumer, by means of a charge in the rate over and above the requirements for a reasonable return and over and above the requirement for replacements, then there could be no criticism of the justice of the proceeding; but the fund in that case would be honestly named a "purchase fund" and it would not be necessary to resort to the deception and fraud of concealing its real and only effect, under the guise of a so-called depreciation fund, supposedly collected for the purpose of preventing or offsetting real depreciation. Such an agreement however does not exist, and it is not too much to say that public officials who knowingly place the burden of the purchase or partial purchase of utilities upon the present generation for the benefit

of a future generation of consumers, are exceeding their authority, unless they have been plainly delegated such powers and furthermore unless the transaction is done openly and under proper nomenclature, there is either wittingly or unwittingly an inexcusable attempt to deceive the consumer or the investor or both; and it might be a serious question whether the legislature could confer such power.

So much for an attempt to conceal a future purchase fund under the name of a depreciation fund. As to the effort to bring about a similar result as applied to the past, there is a situation so unjust that it is impossible to believe that sworn officials who have and do countenance the doctrine of theoretical depreciation can perceive the real results of its application.

We must remember that in the past the consumer gave nothing in his rate for the purpose of establishing a needless so-called depreciation fund or for what should be called a purchase fund. Theoretical depreciation was unthought of either by utility owners or by public officials, and the plain and sound view prevailed that, in a continuous business, full maintenance and replacement offset and prevented depreciation; and the fact was recognized that so long as a plant then and in the future was assured of efficiently and continuously performing its functions, there could be no lessening of value so far as physical property was concerned. It can hardly be denied by fair minded men that in the past most utility companies were working under a simple system of legal rates, which were fixed by authority without any calculation or knowledge on any one's part of any allowance for this purchase fund, falsely called a depreciation fund. The companies were allowed to charge the consumers a certain legal rate and in return were expected to give good service and provide for a continuation of good service. When this was done, the residue of profits whether large or small became the legally acquired property of the utility company or its owners. If the regulating powers thought these profits

too large, they might lower the legal rate, but once they were made, the profits, if any, unquestionably belonged to the investor or the company.

It is one of the stock assumptions in the theories which we are criticizing, that the consumer should always have paid in advance for any item of equipment, before it was abandoned, and the *ex post facto* ruling is made that it was the duty of the utility owner to see that he did so, regardless of the cause of abandonment, whether wear and tear, obsolescence or inadequacy.

Let us examine the real facts. The users of the item of equipment are responsible for its wear and tear. Wear and tear is caused by its use in their service, and their rates should be charged with the cost of such wear and tear, or the expense of making good the wear and tear.

In nearly every item of major equipment of a utility, or in fact in nearly all well made machines of any sort, the wearing parts are so constructed that they may be renewed. This is a fact well known to any mechanical engineer or machinist. Machines otherwise constructed would not be accepted. This being the case, the wear and tear is, in most items of equipment, counteracted and made good during the life of the machine. An examination on the witness stand of men in charge of machinery in public utilities would prove that in nearly every case, when a machine or piece of equipment goes out of use, it is still in fit condition to perform the service for which it was originally intended, with very little, if any, lowering of efficiency. There is an exception to this rule in the individual cases of such items as railroad ties and pole lines; but in these cases, the whole equipment of poles and the whole equipment of ties may be regarded as one machine, and the repairs constantly counteract the forces of decay in such a manner as to keep the equipment fully efficient.

Conceding that wear and tear can be counteracted in well designed machines and in other equipment, by constant repair, and that that repair is borne by the rate collected from the



consumer using the equipment, we then have, as almost the sole causes of abandonment of equipment, the destructive forces of obsolescence and inadequacy. Obsolescence and inadequacy are caused not by the consumers during the life of the equipment but by the new demands and new standards of the consumers coming after specific equipment is abandoned, as in the case of the abandonment of apparently efficient street railway cars of one type for the improved stepless cars. Who is it among the consumers who are benefited by the abandonment of the old type and by the adoption of the newer type? The old consumer who used the old high step car or the future consumer who will enjoy the convenience of the stepless car? It is only to meet the demands or to improve the service of the future consumer that the earlier type of car has been abandoned. Should it be said that the past consumer should pay in his rate for the increased convenience of the future consumer, or should the charge for the abandoned property be placed, in part at least, upon the real beneficiary of the change?

This aspect of the situation does not seem to occur to the theoretical depreciationist, yet, as a question of justice, it is very simple and very plain; and instance after instance could be cited as illustrating the error in the assumption that all abandonment should be paid for by the consumer during the life of the equipment abandoned.

Notwithstanding this almost self-evident truth, it is often claimed that the replacement charges of present day calculation should be projected into the past, as a matter of justice between consumers of different periods, that the company is responsible for not adopting this illogical theory, and that as a fund would have resulted which would have produced a part purchase of the plant, it must follow that the owners should give up a part of their property to the present day consumer on account of their neglect to rob the past consumer. This may sound somewhat exaggerated, but when the plain truth is told, it is what the doctrine amounts to.

But under the specious appearance of providing a fund for replacements or for a lessening in value, neither of which purposes it can properly serve, it is now in effect assumed by the theoretical depreciationists that the owners of a utility should have in the past set aside a fund out of their profits for the purpose of buying a part of the plant from themselves and giving it to the consumer.

The theory does not appear in this guise, but that is what it is nevertheless; and the so-called theoretical depreciation fund, if it exists as a surplus over the needs of replacement requirements and if its amount is deducted from cost to arrive at allowed earning capital, is nothing but a purchase fund unwittingly provided out of their legitimate profits by the owners of the plant and used to buy a part of the plant for the consumer.

If the fund does not exist, so much the worse for the owner. Attempts are made to take away a part of the plant anyway, under the plea that the company should in the past have set aside a fund to make the purchase for the consumer. This, of course, is said in other words and other terms are used, but the result is the same.

There are some who flatly claim the right of regulating past profit today through the device of theoretical depreciation. Let us see where such an assumption will lead. Past profits if legal were legally acquired property, no matter whether we now think them excessive or not. Imagine giving any body of men power to take away legally acquired property because they do not approve of the way in which it was acquired. Clearly, the legislature would have no such power. Yet this power is virtually assumed under the guise of theoretical depreciation, when a company is compelled to buy a part of its own property for the consumer out of the legally acquired profits of the past. Remember that in the past the consumer gave nothing for theoretical depreciation in his rate.

We have shown that a theoretical depreciation fund can not be used for replacement, and this is conceded by most students of the question.

We have shown that it can not properly be used as a compensation for a lessening of value.

We have shown that it can not properly be applied to a part purchase of the property for the consumer, without either a usurpation of authority when applied to the future or a confiscation of the past profits of the company when applied to the past.

There can then be but one conclusion. The fund should not be allowed to accumulate for the future beyond the current needs of replacement, and its name should be changed to replacement fund. If such a fund has, through mistaken accounting, accumulated or been assumed in the past, it should be adjudged an accounting mistake, the name of the fund should be changed, and whatever property it represents should be used by its real owners, the utility company, as it may see fit.



## Chapter V.

It should follow as a matter of course, if a theoretical depreciation fund should not have been collected, that the amount of it cannot be used as a measure of deductions from the investment to reach a base for calculating reasonable returns. The arguments used to show that there could be no proper purpose in collecting it are essentially the same as the reasons advanced to show that its calculated amount cannot properly or reasonably be used to arbitrarily decrease the earning power of the investment. Nevertheless, in order to present the problem from a slightly different angle than heretofore, we append the following succinct statement:

There are five theories upon which deductions from capital for so-called depreciation are based. All of them are fallacious.

First. The theory that the plant is not new and therefore not *worth* as much as new.

An efficient, well maintained plant in its permanent condition may be and generally is *worth* much more than when new, and at any rate the *worth* or exchange value depends on earnings and can not enter into rate cases, and rate cases are the main purpose of "valuation."

Second. The theory that part of the life of the plant as a whole has been used up and therefore a part of the capital has been withdrawn.

This is erroneous, because the plant is constantly being renewed and theoretically is no nearer its end at one time than at another.

Third. The theory that a depreciation fund based on the estimated lives of the separate items and set aside from their installation is necessary to the continued efficiency and life of the plant and that if this fund is not so set aside it is a withdrawal or impairment of capital.

This theory is erroneous from the fact that such a fund is not necessary and therefore the lack of it is not an impairment of capital nor in any way detracts from the value of the utility itself. Correct depreciation (replacement) charges will not accumulate over a long period but will be used up in replacements.

Fourth. The theory that destruction of parts should have been charged off before they ceased giving efficient service, on that ground that as a matter of justice between different generations of consumers it was the duty of the owners to see that all abandonments were charged to the consumers preceding the date of each abandonment.

Such accounting would, in the first place, have been an impossibility, and, in the second place, even if possible, it would have worked injustice instead of justice between the consumers of different periods (as shown on pp. 37 & 38). It cannot, therefore, be assumed that any such duty rested upon the owners of the utility.

Fifth. The fifth theory is simply one of reclaiming past profits because they now seem to have been greater than would be allowed in the future. In other words, it is claimed that because there were large profits, the past consumers have bought a part of the plant for the future consumers.

This is the ground of defense to which advocates of theoretical depreciation can generally be reduced. It of course is begging the question of depreciation; for past profits have nothing to do with the amount of capital now represented by the plant owned by the investors, nor with the present value of the property. When stripped of its masks, the theory is one of bald socialism.

Except by contract of charter or franchise, and, with the sole exception of the Massachusetts Sliding Scale Act, there does not exist in the United States, so far as we can learn, any law authorizing the direct regulation of the profits of utilities; and whatever elements may be considered by a com-

mission, and whatever effort may be made to have a proposed rate bring a certain net profit, the legal powers of the commissions stop at the fixing of the rates. These rates may bring more or less profit than is intended, but whatever the profit is it belongs to the owners of the utility. As we have said, the regulating powers may cut down the profits by cutting down the rates, but they cannot, except by some specious and illegal device, take away those profits, once they are made.

The fundamental truths of the question are these and they are very simple.

Capital is in the service of the public so long as the property representing it is in the service and doing efficient duty; and it follows that returns must be allowed on the full amount serving the public or confiscation will result to capital already invested and new capital will refuse to enter.

The only time when physical plant is depreciated, or more correctly stated, when it causes depreciation, is when it gives inefficient service, i. e. when the investment in it is inefficient.

In such a case, the remedy is not permanent reduction of returns to the capital by reduction of the rates but cessation of returns, through the employment of earnings for rehabilitation until the plant and capital are made efficient.



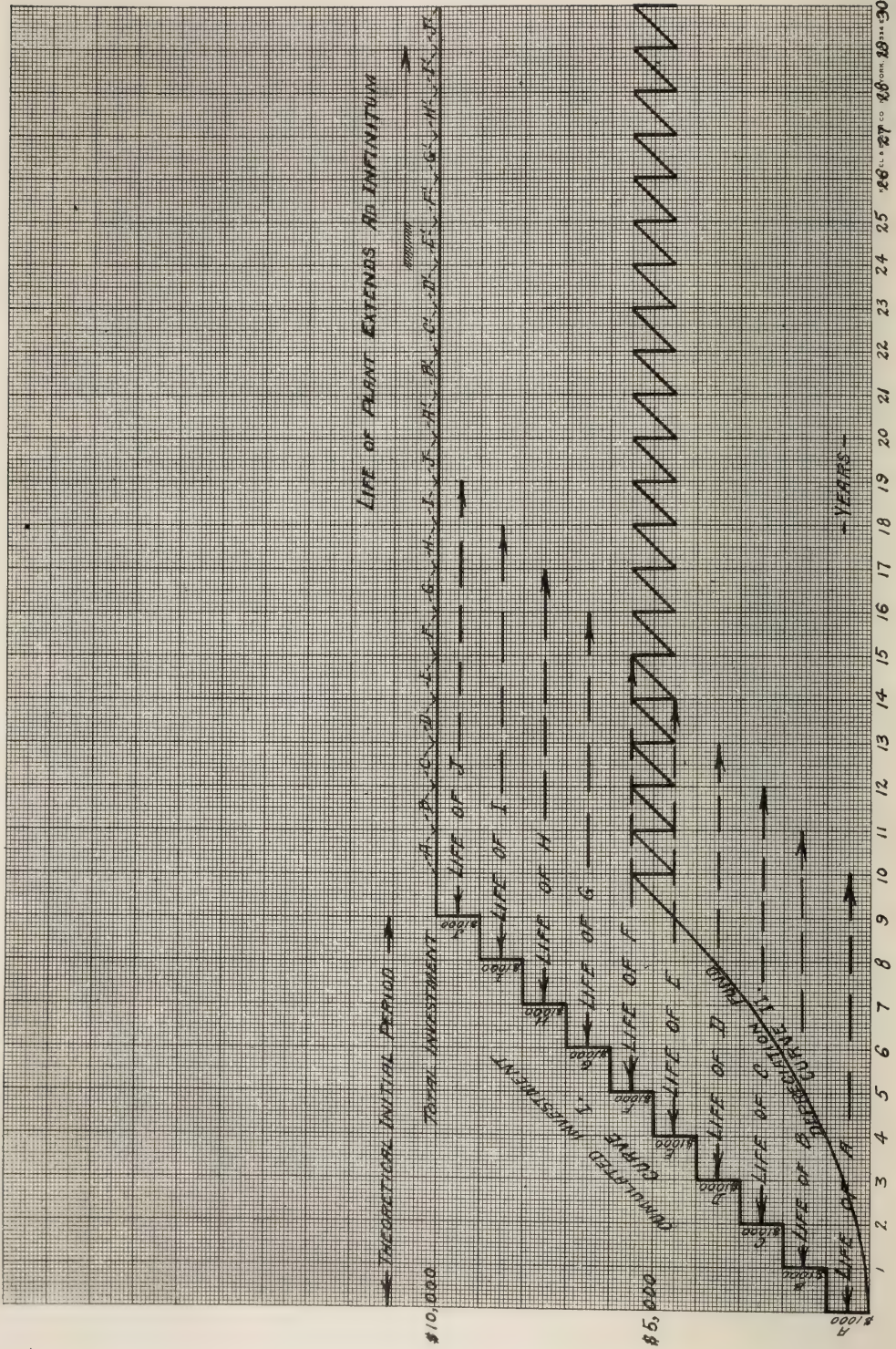


Diagram 2.

## Chapter VI.

As a final chapter in our discussion of principles, we wish to show by means of simple diagrams that theoretical depreciation, in so far as it contemplates an assumed fund accumulated in the past, is only an ill considered theory and that, even theoretically, its conclusions are wrong, when the investigation or analysis is carried over the successive steps which should be taken before the rational results of the theory are reached.

In diagram 2, we have assumed a hypothetical property of ten thousand dollars, resulting from successive investments of one thousand dollars for a period of ten years. The assumed conditions are of course extremely simple, but it would be impracticable to diagram anything as complex as even the simplest of any actual properties of any size. However, the hypothetical case here shown will illustrate broadly the theory, and is analogous to the principle of its application.

In diagram 2, the accumulation of investment units A, B, C, D, &c., &c. of one thousand dollars annually are represented by curve I, in which the property is shown increasing from the first to the tenth year. The life or average life of each successive installation is assumed to be ten years and is diagramed by the arrow-pointed lines, "Life of A", "Life of B", etc., etc. The successive renewals are indicated by the dotted loops: loop "A" representing the renewal of installation "A", loop "B" representing the renewal of installation "B", etc., etc.

Curve II represents the theoretical accumulations and withdrawals of an annual replacement or depreciation charge of 10% of the property in the service at any time. The first year there is set aside 10% of one thousand dollars, the second year, 10% of two thousand dollars, and so on until the full ten thousand dollars is invested, when the annual amount set aside is one thousand dollars.



It is seen that on account of the assumption that there are no renewals until the end of the tenth year. Curve II shows an accumulation at that period of five thousand five hundred dollars, or 55% of the property. At the end of the tenth year, there must in this theoretical example be a renewal of installation "A", which brings the fund down to four thousand five hundred dollars. But the annual charge now amounts to one thousand dollars, so when installation "B" is renewed, the fund again has mounted to five thousand five hundred dollars; again it sinks to four thousand five hundred, and thus theoretically continues to infinity, oscillating between 55% and 45% of the property. \*

It appears then that an average fund of 50% has been created, which theoretically is permanent, and cannot be used for purposes of replacement.

In contemplating his hypothetical theoretical fund, the depreciationist forgets or refuses to take into account the well known truth that in most instances the early years of a utility are a struggle for existence, and that there is seldom any money set aside, even for purposes of actual necessity. But even if the ability to have set aside such a fund is admitted, the situation is not changed in the least.

The theoretical depreciationist forgets or refuses to acknowledge that there could have been no duty on the part of utility owners to set aside a fund which could not be needed for its only legitimate purpose,—that of replacement. He forgets, or refuses to admit, that no sane person in the past could have contemplated the necessity of providing for an assumed arbitrary cutting down of the earning power to a return based on less than the investment. Even if such things as theoretical depreciation were known in the initial stages of most of our utilities, the very clear provisions of the statute, in New York at least, should now protect them against its application.

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\*Note: For simplicity, scrap value is omitted from the calculation.



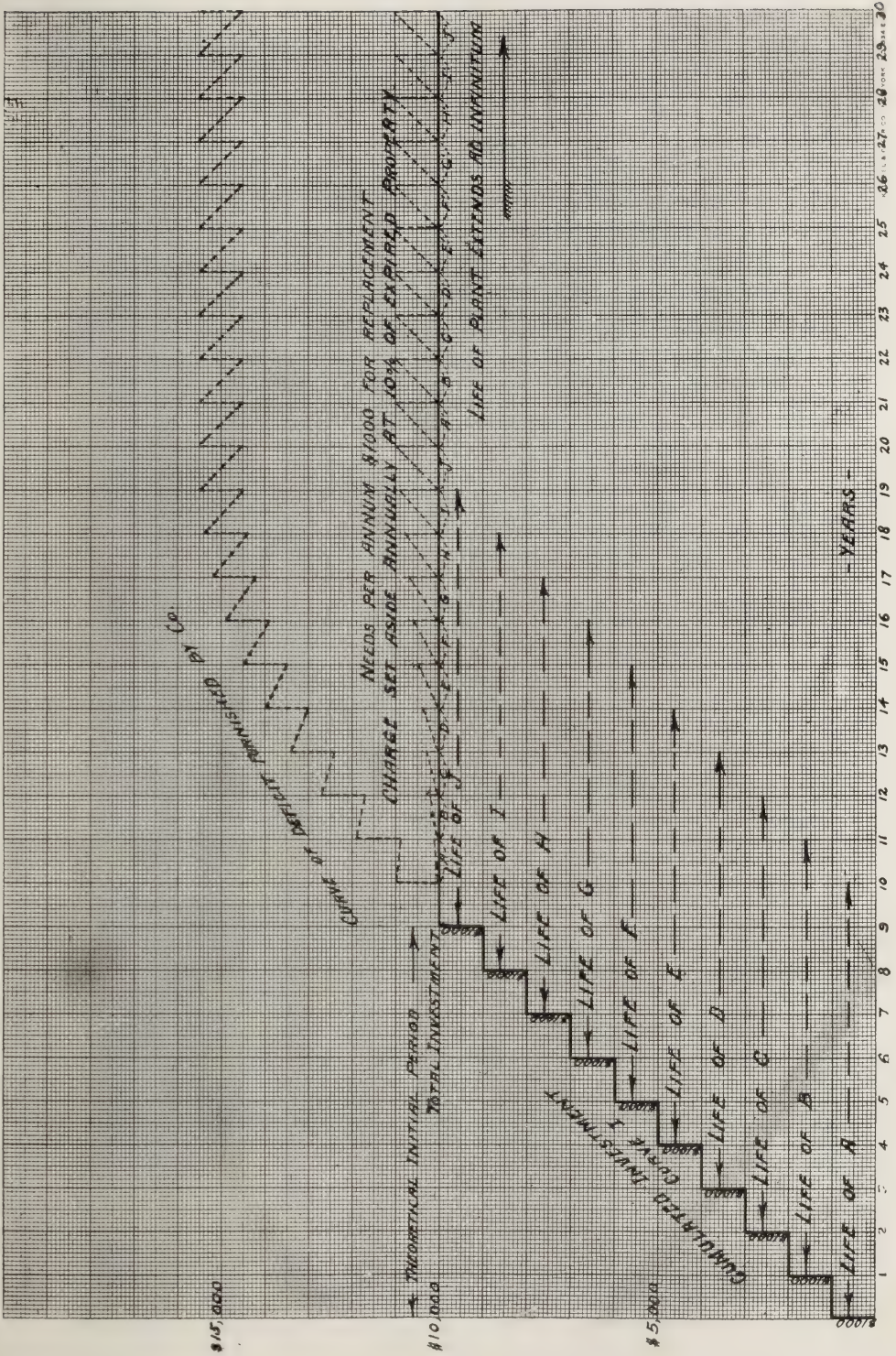


Diagram 3.

But above all the theoretical depreciator seems to have overlooked entirely the fact that the consumers in the initial stages of the enterprise under discussion were under no obligation to pay for a great part of the replacements made necessary by obsolescence and inadequacy caused by succeeding consumers. The theorists have gone no further than to assume that the initial consumers should have shouldered the burden of the succeeding ones. They do not seem to have attempted to analyze this assumption. When looked at squarely, it would seem that the weight of argument, as we have pointed out in preceding pages, (see pages 37 & 38) is entirely in favor of the justice of placing the burden of renewals caused by obsolescence and inadequacy upon the users of the new equipment, rather than upon the users of the abandoned equipment.

If this theory had been adopted, and we submit that it is the more rational of the two, let us see by diagramming our same simple example, what the results would be.

We are assuming here theoretically that all wear and tear has been borne in the past, that the abandoned equipment is in the same efficiency of condition as when new, and that the sole cause of abandonment is obsolescence or inadequacy. We do not claim that in practice such is always the case, but the assumption helps to more clearly bring out the results of admitting the real truth, that not all the replacement charges for equipment should be taken from the period before the abandonment.

In diagram 3, we illustrate the same property as in diagram 2, but it is here assumed that the collection of the 10% replacement charges begins on each installation, only after it has been abandoned and replaced. The annual amounts of these charges, as shown by the curve placed immediately above the ten thousand dollars investment line, begin with one hundred dollars for the eleventh year, as payment on A installation, two hundred dollars in the twelfth year as payment on A and B installation, and so on increasing by one



hundred dollars each year until the full annual charge of one thousand dollars is reached in the twentieth year.

But while this method of collection might be in accord with strict justice as between the consumers of different periods, we are confronted with the fact that, at the end of the tenth year, we need one thousand dollars to replace installation A, which must be furnished by the company and forms a deficit as shown in the top curve, which by the end of the eleventh year is reduced to nine hundred dollars by the collection for that year. Then there is need for another thousand dollars to replace installation "B", and so on following the curve of deficit furnished by the company, until it is seen that at the twentieth year, the company, in taking care of the deficit in replacement charges, has added to its investment a permanent sum fluctuating regularly between five thousand five hundred and four thousand five hundred dollars, or between 55% and 45% of the cost of the existing property, if inventoried.

We have here two theories for the meeting of replacement. In the first one, it is assumed that the companies in the past carefully charged up to the wrong people provisions for conforming to a theory which we all concede they did not even know existed.

In the second theory, we have a condition which comes very much closer to what has actually happened, although we do not claim that there was much conscious effort on the part of the companies to conform to this or any other theory. But the circumstances of the earlier periods of most utilities and the personal knowledge of nearly all men experienced in the utility business teaches that recoupment after the abandonment, has been more relied upon than provision for it before it occurred. These managers of the earlier utilities were probably not consciously weighing questions of delicate justice between different generations of consumers. The humor of such an assumption is apparent; but it cannot be



denied, that in acting as in most cases they did from compelling circumstances, they have come closer to accomplishing this delicate piece of public welfare work than have the theorists with all their self-consciousness of personal disinterestedness.

In addition to the fact that circumstances in the initial stage of utilities generally forbid the accumulation for abandonment before it takes place, there is the general business principle, that property destroyed or abandoned in making improvements of any sort, is to be paid for out of the future profits of the enterprise. If a man tears down a ten thousand dollar house in putting up a one hundred thousand dollar apartment or store, he expects the profits from his new building to pay for his destruction of the old. We do not give this as a principle always applicable, but it would certainly be the view-point of the older utility man before the days of utility regulation.

It is seen from diagram 3 that if the perfectly correct and just method of charging obsolescence and inadequacy to the consumer following the abandonment is rigidly enforced, the result will be that the company will have to furnish a further investment of nearly 50% of the physical property.

In other words, in the instance diagramed, the company, in order to carry on the service, would have to have fifteen thousand dollars of capital invested, of which only ten thousand would appear in plant. This process has undoubtedly gone on very generally among the utilities, and is the explanation of many a bond issue, or the sacrifice of equity by the owners of the plant. It can account for much so-called water, but unfortunately most of the companies have not as yet come to the point where they can so analyze their replacements as to claim, with some assurance of success, that there should be an extra allowance of earning power for capital invested in deficit of replacement charges, instead of a deduction for an assumed surplus as is claimed by the theoretical depreciators.

In our diagram 3, we have assumed that the sole factor in abandonment is obsolescence or inadequacy. This is of course the extreme illustrative assumption, but it is not far from the truth. At least we can safely say that it is the controlling factor in abandonment. We can also say, without fear of successful contradiction, that past consumers should not have been charged with the expense of abandonment, of which they were neither the cause nor the beneficiaries.

It should be evident from the foregoing that the theorists have not even followed their theory correctly. If they had, the problem now would be: how much shall we add to the inventory to determine the capital justly entitled to returns, instead of the present erroneous and unjust efforts to make as great a reduction as possible, and to create a situation economically unsound, forbidding to the entrance of future capital and confiscatory to that already engaged in the public service.





Part II.

DETAIL DISCUSSION OF DR. WEBER'S PAPER.



## Part II.

## DETAIL DISCUSSION OF DR. WEBER'S PAPER.

Dr. Weber introduces his paper or memorandum on Accounting for Depreciation, with the following sentence:

"Depreciation is defined in general as 'The falling of value or reduction of worth' (Webster); or more specifically, as the decrease in value of perishable property due to age, use and other causes."

Dr. Weber's definition of depreciation, which might be inferred to come entirely from Webster, is a very good instance of the many little inadvertences which have done so much to persuade superficial thinkers as to the truth of certain erroneous conclusions and interpretations connected with the problem of depreciation.

In this quotation from Dr. Weber's paper, it is true that Webster defines depreciation as "the falling of value or reduction of worth," but an examination of a number of standard dictionaries has failed to show us where any definition of depreciation includes what he calls his more specific definition, i. e. "As the decrease in value of perishable property due to age, use and other causes." The impression which might be gathered from this specific definition is that age and use do necessarily cause depreciation or lessening in value. While it is true that they may, in certain instances, cause a lessening of value, yet because a property or an article has age or has been used, it does not follow that its value has become depreciated merely because age and use exist.

A few lines further in this paper, Dr. Weber quotes a Mr. P. D. Leake, an English accountant, as follows:

"In its true commercial sense, the word depreciation means fall in exchangeable value of wasting assets, computed on the basis of cost expired during the period of their use in seeking profits, increase or other advantage."

Mr. Leake's definition is, of course, his own and is not generally accepted as defining the broad meaning of the word



“depreciation.” But his phrase, “on the basis of cost expired during the period of their use,” might mean that in the utility as a whole there was depreciation only when an item of equipment went out of use and that the cost of that item could not be said to have expired in the sense that the capital was no longer useful in the utility before its usefulness has ceased. With this interpretation, we would not find fault with the definition for the purpose of this paper, but it should be remembered that in utilities, as soon as an item of equipment ceases to be useful and is abandoned, it is replaced, and this very replacement prevents a depreciation in the value of the utility as a whole, attributable to age or use of its parts.

Dr. Weber further states that Mr. Leake gives an alternative term for depreciation as “Expired capital outlay,” and says that this definition is superior in its exactness to the definition of Webster and presumably of other English lexicographers.

Expired Capital Outlay is not an exact term unless it is taken in a sense directly opposed to Dr. Weber’s theory. What meaning Mr. Leake intended it to convey we do not know, but the only exact meaning to apply to it is that capital outlay has expired only when capital represented by equipment ceases to serve the main purpose of invested capital, by failing to contribute in full original efficiency to the ability of the plant to perform the service which justifies and creates earning power.

It should be evident that, in a large utility, capital outlay is constantly expiring, and where replacement is properly provided, is just as constantly being replaced and the capital being maintained; and there is consequently no depreciation under that definition of the term.

Dr. Weber further states, on page 13, as follows:

“Everybody old enough to recognize the difference between the value of a new article and a second-hand article of the same kind, understands the meaning of depreciation.”

If this were true, then almost any child could understand "depreciation". It would also be true that the commissioners, courts, engineers, etc., etc., now engaged in sharp controversy over the problems of depreciation, are occupying themselves in a childish pastime.

What Dr. Weber means, we take it, is, that as a rule, second-hand articles will sell for less in the market than those which have not previously been sold to a customer. Even the idea of age is not essential to his statement of loss of value on account of being second-hand. A second-hand article may be of more recent manufacture than another similar one still on the shelves of the shop, yet prejudice and custom will perhaps make it sell for less than the one as yet unsold to the consumer.

Does Dr. Weber intend to recognize such a thing as a second-hand utility?

Dr. Weber evidently has in mind a method of valuing utilities which consists in valuing as second-hand each of the separate parts of the utility and then adding these results together, with the idea that the sum produced is the value of the utility as a whole. The problem is not quite so simple as that, because, as we have already pointed out, the elemental factors which go to cause or produce value in a single machine are entirely different from the factors which cause or produce value in the utility as a whole.

It might be well to repeat here the authentic definition of the word "value", as applicable to such problems as the one before us.

The Century dictionary gives the following definition of "value":

"The importance of a commodity measured in other commodities (commonly represented by money) for which it can be exchanged in open market; the rates in which one thing can be exchanged against others; the command which one thing has over others in traffic; in a restricted (and the popular sense,) the amount of money for which a thing can be sold; price.

“In political economy, value, is distinguished from price, which is worth estimated in money, while value is worth estimated in commodities in general.”

In order that the true meaning of both words may be before us, we also repeat the Century dictionary's definition of “Depreciation” viz.:

“The act of lessening or bringing down price or value —2. a fall in value; reduction of worth.”

Dr. Weber further states, on page 13, as follows:

“While in recent years an attempt has been made to becloud the idea of depreciation with the argument that an instrument of production which is today giving satisfactory service, even if its normal life is nearly run, is just as valuable as a similar instrument of production which has just entered upon its life in service, this argument is seldom taken seriously.”

This statement affords a good illustration either of lack of understanding of the real arguments which are advanced against piecemeal assignments of value, or presents these arguments inadequately, or possibly it refers to arguments of persons who did not really understand the problem, and who, although they may appear to have waded deep into the work of valuation, yet are unable to see further than reasoning on the single value of a mere engine, boiler or some other concrete piece of equipment.

It has, apparently, not occurred to him that the ability to replace and the right to charge the consumer for replacement preserves the value of the utility as a whole from being affected by the piecemeal expiration of units.

Quoting further from page 13 of Dr. Weber, we find the following:

“With what lack of seriousness it is advanced (argument in previous quotation) is well illustrated in a recent capitalization case before the Commission. The owners of the Metropolitan Street Railway, in asking the Commission to approve an issue of securities pursuant to a plan of reorganization, maintained that cars in active ser-



vice were worth their original cost, irrespective of their age; but a few weeks later, having decided to replace a certain type of car with the new "stepless" car, they took the position that the old car which for reorganization purposes had been worth its original cost of \$3700. was really worth only \$600. They proposed to augment their fixed charges by issuing new securities for the entire cost of the new cars in excess of this \$600. per car, thus including the \$3100 necessary to maintain the existing investment and capitalization: What at first had been "theoretical" depreciation in the argument of their counsel, almost over night became actual depreciation."

It can be shown by arguments supported by the very best authority of the courts that the position of the Metropolitan Railway throughout this instance was entirely correct and perfectly sound in economics and law. Whether the Company knew this or not we do not know. It is very possible they did not.

As has already been shown in our discussion of principles, there is no injustice in assigning the replacement charges, where there has been an abandonment on account of obsolescence, upon the shoulders of future consumers who are the cause and the beneficiaries of such abandonment. This is not only reasonable and just, but is clearly supported by the decision of the U. S. Supreme Court in the Kansas City Southern Ry. case, which, as elsewhere quoted, says:

"The other kind of depreciation is the result of charges attributable to the inadequacy of the existing property to meet the demands of the future. The road or the structures have to be replaced with stronger or more efficient instrumentalities. Abandonments occasioned by changes of this character are therefore chargeable to future earnings, for the reason that the improved condition of the road is not only designed to meet the demands of the future, but presumably will result in economies of operation; and so the resulting benefits will be reaped by those who hold the stock of the company in the present and in the future".

In the "horrible example" instanced above, the Company was in the first instance rightly claiming to be al-

lowed to capitalize its investment in cars, which we assume had been properly maintained and were performing a service practically as good as when new. They had not amortized the cars from extra payments from the public, and were entitled to continued earnings on the cost so long as their capital, as represented by the cost of the cars, continued to serve the public; hence their claim that they be allowed to issue securities properly representing the capital was perfectly sound.

Now, in the second instance, the cars were to be abandoned on account of obsolescence, and for the benefit of future operation. It was therefore reasonable that, in order to make the replacement, they should seek to issue bonds payable from future operations, in order to make good the replacement.

This transaction has frequently taken place in utilities; but the truth is not generally known that the payment of such bonds should with justice rest upon the consumer as a charge over and above a reasonable return, instead of resting, as it does in most cases where there has been regulation of rates, upon the owners of the property to be taken from their returns.

Quoting further from Dr. Weber's paper, on page 14, he states as follows:

"At the present time it hardly needs to be said that engineers and economists are, with very few exceptions agreed that the so-called 'theoretical' depreciation is absolute depreciation, and that the accrual of depreciation from month to month should be recognized in the expense accounts as explicitly as the accrual of a tax payable at some future date."

This statement is incorrect, although some engineers take the position described. They are as a body by no means agreed, as will be shown later in discussing a reference to the American Society of Civil Engineers. As for the economists, it may be said with truth that no economists of standing have agreed with the position assigned to them in the paper under discussion.

On the contrary, the really eminent economists who have printed anything on this subject have been unanimously and out-spokenly against the theories advocated in Dr. Weber's paper.

We herewith give the closing paragraphs from papers on the subject of depreciation by four of the most eminent economists in the country, submitted as part of a report presented to the city of Houston, Texas; namely: Professor J. Lawrence Laughlin, formerly head of the department of economics of Chicago University; Allyn A. Young, professor of economics and finance at Cornell University; W. F. Gephart, head of the department of economics of Washington University; and Lewis J. Haney, formerly head of the department of economics of The University of Texas, now expert in economic statistics for the Federal Trade Commission at Washington.

Professor Laughlin closes his part of the report referred to as follows:

"If maintenance is admitted, it seems to me there can not be two opinions as to the injustice in subtracting a supposed depreciation—which admittedly does not exist—from the total valuation to earn dividends.

"If the municipality, or commission, that has the power to regulate rates paid by the public for a public utility, should fix rates so low that the investor receives an interest only on a part of his proved investment, that is equivalent to confiscation, of a part of the capital invested. For this there is no economic justification.

"Perhaps, it may be argued that the present selling value of the property is a fair valuation on which to provide earnings. If the maintenance has been thorough, and the whole investment is earning a safe return, its selling value would be the amount actually invested. But if, for any reason, rates in the past were reduced so that only half the usual dividends were allowed, then the investment would sell for one half what was put in. Any valuation at the present on such a basis would only perpetuate a past injustice.

"The above opinion pivots on the assumption of efficient maintenance. Whether that has been done, or not, is a question of fact, and not of principle and justice."



Professor Young closes one section of his report as follows:

\* \* \* \* "The original investment, if properly made, is a concrete fact, properly to be taken into account in determining *the amount entitled to a return*. So, too, repairs, renewals, and replacements are concrete facts, properly to be included in *annual operating expenses*. But 'depreciation' over and above the amount adequately provided for by repairs, replacements and renewals, is a mere abstraction,—a bookkeeping fiction,—useful in some businesses and for some purposes, but altogether meaningless for the problem of the control of large public service companies.

"In other words, if a company in a condition of normal operating efficiency is permitted to earn only on a 'depreciated' investment, this can only be because the company has earned larger profits in the past than it would have earned if it had been forced to put part of its gross earnings into an absolutely useless depreciation fund. It cannot be maintained that the company could ever have expected to make this disposition of its gross earnings; it cannot be maintained that it should have done so, or even that anyone could have expected it to do so. Who can say that the investment would ever have been made if an idle depreciation fund (or its equivalent) had been insisted on? To insist on the deduction of 'depreciation' from the total 'valuation' of a large public service company is to pass by the obvious and simple facts of the case and to be misled by a bookkeeping fiction."

Professor Young closes another section of his report in these words:

\* \* \* \* "In many cases capital would never have been invested in particular undertakings if it had been imagined that the earnings of the capital would be burdened not only with the admittedly proper duty of maintaining and replacing the capital assets as they actually wear out, but with the further and useless load (certainly never anticipated) of maintaining a perpetually idle 'reserve for accrued depreciation.' And if it is unjust to expect that a 'reserve for accrued depreciation' should, in addition to all proper replacements, have been required from a company from its beginnings, it is equally unjust to deduct 'depre-

ciation' from the value on which a public service company should be allowed to earn, for the two requirements are, in essential principles, identical."

Professor Gephart closes his report as follows:

" \* \* \* \* \* First: A public utility with parts installed at different times, with the original capital honestly and efficiently spent and the plant efficiently operated has no use for a depreciation fund to replace the plant as a whole. The plant as a whole is not wearing out. Its parts are wearing out and are being replaced from time to time.

"Second: It should be one of the duties of any regulating body to compel the plant to be maintained in a manner to serve the public efficiently, if the interests of the owners do not secure this result. When this is done, continual replacements are made and not expenditures of a depreciation fund to secure a new plant.

"Third: The public is forced to pay an unnecessary charge for the service into an unusable fund, if a depreciation fund is accumulated.

"Fourth: In valuing such a plant, no deductions from capital need be made for depreciation. Public regulation should compel the plant to be maintained in a manner to serve the public efficiently, and this compels the replacements of parts continually.

"The Utility plant is not a machine with a certain life time of service. Therefore, in determining the amount of capital upon which the investor should be permitted to earn, no deduction should in the assumed case be made for depreciation."

Professor Haney closes an able paper with the following paragraphs:

" \* \* \* \* \* (2) For another thing, it has been made clear that the plant as a whole can never, even theoretically depreciate to zero. Its life, so long as it gives service is everlasting. That being the case, its 'theoretical present value' based on remainder of life can have little significance. As stated before, such a valuation is purely a phase of theoretical accounting. A well maintained plant composed of many units where proper replacements are

promptly made does not depreciate in fact and its lessening of value is only theoretical. Thus, because the plant as a whole never comes before the public as completely depreciated, the idea has crept in that theoretical depreciation may be deducted from the true investment and that the owners can and will continue to furnish their capital to the public service. This should now be recognized as an economic error and thoroughly unjust and inexpedient.

*“It is unjust*, because, in the last analysis, it rests upon reasoning like the following:—

(1) Because the owners must continue to operate, and because we can compel them to operate so as to give good service to the public.

(2) The actual depreciation has been offset by replacement in the past and will continue to be offset by the expenditure of the depreciation charges in the future. Good service to the public being thus provided for, we are safe.

(3) Therefore, being safe, we will refuse to allow them to include the amount of our theoretical depreciation in the fair value upon which they may earn returns. They must get along without it.

“Merely to state the case is to show its injustice.

*“It is inexpedient*, because if generally adopted it will retard investment in public utility enterprises. The capital now invested is at our mercy. Not so in the future. And unless capitalists know that the depreciation charges that are bound to come during the first years of the plant life are to be recognized in rate-making, they will refuse to enter the line of business or make extensions therein.”

These four men are of recognized distinction in their profession, and, among economists, their reputations are national, if not world-wide. It is difficult to understand how the statement could be made that the “economists, with very few exceptions, are agreed, etc.”; for there has been very little published by economists of standing on the depreciation problem. Indeed, except the papers here quoted and a similar paper by Prof. Young published in the *Quarterly Journal of Economics*, almost nothing has been published by men of real distinction in the economic world.



Quoting from Dr. Weber's paper Chapter 2, page 14, we find the following:

"The nature of depreciation appears more clearly upon examination of the distinction between 'capital' and 'expense'. Although this is the fundamental distinction based entirely upon the period of time embraced within the accounting period. The usual accounting period is a year and the year has been officially recognized in most of the legislation that gives public boards supervision. This purely arbitrary standard of time has been adopted in the uniform system of accounts and endorsed by the companies' committee. It is conceivable, however, that an enterprise using automobiles as a principal instrument of production might fix upon five or six years as its accounting period, during which the automobiles would be worn out and would therefore be entered directly in the expense account."

In this paragraph the usual mistake is made of assuming that a utility or other enterprise requiring large and varied equipment, has a beginning and a conceivable end to its physical plant.

A utility plant has a beginning which is generally a growth from small initial installments; but so far as we can foresee, utilities in well established communities have no conceivable end, nor is it conceivable that at any time there will be an entire lapse of plant facilities to furnish the public service. The very general assumption by those who have not given intelligent consideration to the question, that a utility plant, from its inception, is moving toward an end of its physical life and is therefore becoming less valuable, ought to be dismissed as childish and absurd, were it not for the fact that so many minds engaged in the work, and often in places of authority, seem to be unable to grasp the simple fact that while parts of the utility plant are constantly coming to the end of their useful life, they are just as constantly being renewed and that the capital in the plant, as a whole, when proper standards of value are used, is not being lessened.

Dr. Weber's use of the instance of a company using automobiles, is quite often employed in attempts to prove a constant lessening of value in a complex plant.

Now let us see what would be the real result to, we will say, a Taxicab Company owning automobiles. Can it be conceived that a Taxicab Company will so use its automobiles that they will all go out at once and all become useless at once and that, at a definite time in the future? What happens in Taxicab Companies of any size is that they have a number of machines bought at different times, that these machines are constantly being repaired and renewed, piecemeal to a certain extent, and that in addition to this, certain machines as a whole are being discarded and replaced, and that the capital and the value of the capital as a whole is maintained constantly in a state to obtain and deserve the earnings which give it a value. The result of this is an even investment and an even usefulness of the capital invested, and provided there is no reduction of rates or of business, there is an even or enhancing value to the earnings of the aggregate number of automobiles engaged in the service and in consequence an even or enhancing value to the whole equipment of machines engaged in that particular service.

Dr. Weber further states, at the bottom of page 14, and carrying over to page 15, as follows:

"In the words of a recent writer in the American Economic Review: 'All outlays are capital outlays for a manufacturing concern unless they are considered with reference to a period of time. The supplies of coal used in the production of gas represent a capital investment for the gas company, but if a report for one year be constructed all of the coal which has been used in the production of gas sold to the consumers, becomes an expense to the amount of its original cost. It was a part of the cost of a commodity or service which was sold at a profit or loss. The expenditure leaves no property in the hands of the company except the profit on sales. In the same way an outlay for a machine represents an expense if we take a period long enough to cover the machine's life. Depreciation represents a means

of distributing the expenses over the period. For the business man a machine is capital having some similarity to insurance paid in advance. Both should be marked off over the period for which the outlay constitutes an expense. The fact that a plant consists of an organization of a large number of machines does not alter the nature of the case."

This quotation in Dr. Weber's paper is taken from an article written by Mr. Spurgeon Bell, in comment on a certain report of the St. Louis Public Service Commission. Mr. Bell is not an economist but a teacher of Accounting, formerly connected with the University of Texas.

Mr. Bell is right, if he deducts capital only when capital ceases to be used by the public or when capital becomes less efficient to the public. With this change, he is in accord with us, and with this change the full investment in the service will earn returns. Capital should not be considered as out of the service until it is out.

Dr. Weber continues quoting from Mr. Bell, as follows, page 17:

"It will therefore be recognized that depreciation is essentially a problem in cost accounting. It is a problem of securing a correct allocation to each year's income account of an expenditure that constitutes an expense for a certain period of time. Even if no other interest than the interest of stockholders of different years were involved, the need of a correct profit and loss statement as a basis for the distribution of profits each year would require the setting up of a depreciation account as an item of expense."

We cannot agree with Mr. Bell in his first sentence that "depreciation is essentially a problem in cost accounting." Depreciation is essentially a problem in lessening of value and in making proper provisions to correct or prevent this lessening in value. The tail should not be made to wag the dog. The account should reflect so far as is possible, the truth. Because certain accountants choose to assume that there is a lessening in value and that therefore a large fund should be collected and set aside for the sole purpose of taking care of this ar-



bitrary assumption of the lessening in value, does not *ipso facto* create a lessening of value unless their methods are accepted by regulating officials who have it in their power to arbitrarily lessen value by their ruling. Because accountants often assume that a utility plant as soon as it is installed is as a whole on its way to zero value, is no reason that such is the case. In the ordinary operation of such properties, it is in fact not the case.

There can be no objection to the setting up of a correct replacement or so-called depreciation account, but if this account is so handled as to make it appear that there has been a disappearance of capital or of the value of capital, when such is not the case, then the accounting alone, if accepted, is the cause of depreciation and not the working of true economic law.

The definition of value as given by the dictionaries and as set forth in our discussion of principles as given by eminent economists, means, when it is measured in money, exchange value; and we believe that in our discussion we have shown that exchange value of a plant or of a utility is dependent solely upon the efficiency of the plant, provision for continued efficiency, operating expense, gross income, apparent risk and the current price of money. It is not dependent upon the theoretical composite age of the plant as compared with the theoretical composite life of the plant, as some accountants and valuers would have us believe.

As shown in our discussion of principles, there can be no such thing as a composite life of the plant and therefore there can be no comparison and percentage reduction on account of composite age, on the assumption that a part of the life of the plant has expired.

Any accountant who assumes a reduction in the value of the plant as a whole, not consonant with its real and natural exchange value as a part of the utility as a whole, is trying to subvert the important laws of economics for the more or less trivial convenience of accounting practice. As shown

heretofore in our discussion of principles, the collection of a large fund to take care of estimated future disappearance of property, is an unjust discrimination against the consumers of one period in favor of the consumers of another.

It has been shown that the replacement of capital directly attributable to obsolescence or inadequacy, must, in justice, be collected from those consumers who are benefited by the improved equipment. Wear and tear alone are chargeable to the consumers during the life of the equipment and these charges are, in nearly all cases, met in the expense account from year to year, under the head of repairs and maintenance. This principle is well recognized by the United States Supreme Court in its recent decisions on the accounting problems of the Interstate Commerce Commission, as has already been shown.

On the last of page 15 and continuing on page 16, we quote Dr. Weber as follows:

“The Federal Trade Commission has already announced that no system of accounts can be satisfactory which does not recognize depreciation as an element of expense. Regulations of the Treasury Department for the assessment and collection of the income tax make the following specific provision for the inclusion of a depreciation allowance in the expenses deductible from revenues.”

Before continuing with Dr. Weber's quotation from the Treasury Department regulations, we would say that we distinctly recognize the expense caused by depreciation, but the expenditures are for the prevention, or correction, or off-setting, of depreciation, otherwise there would be no possible reason for incurring the expense.

The expense in the actual operation of a utility is not a mere charge on books, it is the purchase of goods and their installation for use in the utility. It is the immediate restoration of capital withdrawn by abandonment.

Dr. Weber quotes further from the Regulations of the Treasury Department as follows:

“Art. 113. The net income shall be ascertained by deducting from the gross amount of the income of such corporation received within the year from all sources: Second. All losses actually sustained within the year and not compensated by insurance or otherwise, including a reasonable allowance for depreciation by use, wear and tear of property, if any—

“Art. 129. The deduction for depreciation should be the estimated amount of the loss, accrued during the year to which the return relates, in the value of the property in respect of which such deduction is claimed, that arises from exhaustion, wear and tear, or obsolescence out of the uses to which the property is put, and which loss has not been made good by payments for ordinary maintenance and repairs deducted under the heading of expenses of maintenance and operation. This estimate should be formed upon the assumed life of the property, its cost, and its use. Expenses paid in any one year in making good exhaustion, wear and tear or obsolescence in respect of which any deduction for depreciation is claimed must not be included in the deduction for expense of maintenance and operation of the property, but must be made out of accumulated allowances, deducted for depreciation in current and previous years.

“Art. 130. The depreciation allowance, to be deductible, must be, as nearly as possible, the measure of the loss due to wear and tear, exhaustion, and obsolescence, and should be so entered on the books as to constitute a liability against the assets of the company, and must be reflected in the annual balance sheet of the company. The annual allowance deductible on this account should be such an amount as that the aggregate of the annual allowances deducted during the life of the property, with respect to which it is claimed, will not, when the property is worn out, exhausted or obsolete, exceed its original cost.”

The above attempt to bring the authority of the Treasury Department to the support of theoretical depreciation utterly fails of its purpose when Articles 132 & 133 of the regulations are considered, which read as follows:

“Art. 132. Depreciation set up on the books and deducted from gross income can not be used for any purpose



other than making good the loss sustained by reason of the wear and tear, exhaustion, or obsolescence of the property with respect to which it was claimed. If it develops that an amount has been reserved or deducted in excess of the loss by depreciation the excess shall be restored to income and so accounted for.

“Art. 133. If any portion of the depreciation set up is diverted to any purpose other than making good the loss sustained by reason of depreciation, the income account for the year in which such diversion takes place must be correspondingly increased.”

The meaning of these regulations, is made even more explicit by the following ruling of the Department, as published in the Income Tax Service of the Corporation Trust Co., p. 252, Sec. 1327:

“Investment in additions and extensions are primarily capital investments and the fact that the corporation is investing its depreciation funds in additions and betterments or improvements would seem to indicate that the amounts set aside on account of depreciation were in excess of a reasonable allowance which the law contemplates a corporation may deduct from its gross income, and when it shall appear that by reason of the investing of its depreciation funds in additions, betterments, and improvements, it actually adds to the value of its capital assets it will be insisted upon that the amount by which the assets are increased on this account shall be returned as income and be subject to the income tax.”

These regulations clearly mean that when the forces of depreciation are counteracted, i. e. by replacements, there is no further depreciation and that all amounts set aside in excess of such needs must be counted as income; in other words, must be the property of the owner and pay taxes as such.

There could hardly be a more direct support of our contention, that all funds in excess of the actual needs of replacement are, and should be, the property of the owner of the utility.

Another ruling having a bearing upon the discussion in hand is shown by the following abstract from a letter to the

Corporation Trust Company, signed by Commissioner W. H. Osborn and dated September 19, 1916:

“It is not possible in advance to determine when a piece of machinery, equipment, or even a building will become obsolete. In other words, obsolescence cannot be anticipated, and an annual deduction to take care of possible obsolescence cannot be allowed.

“The rules of this office contemplate that annual deduction for depreciation may be made to provide for loss due to wear and tear, the amount of such deduction to be determined upon the basis of the probable life of the property. If it shall occur that the property becomes obsolete or worthless before its estimated probable life shall have expired, a deduction representing the difference between the cost of the property and the amount previously charged off on account of depreciation may be deducted as a loss, this amount being a deduction due to obsolescence of the property.”

This ruling clearly supports our argument against the assumption that the whole of the replacement expense must necessarily be accumulated prior to the abandonment of an item of equipment.

It should be remembered that we are not contending against a proper provision for replacement. We are contending against the accumulation or assumption of a fund not needed for replacement and against the confiscatory assumption that the amount of such a fund represents in any way a depreciation in the value of the property, or that it should under any pretense be deducted from the investment in the property to arrive at a so-called value or base for calculating returns, or that by any pretense an accumulation, however mistakenly set aside in the past, can be anything but the absolute property of the owners of the utility, to be used in any proper way they may deem fit.

These regulations mean that, in calculating operating expense, the taxpayer may add thereto his estimate of the amount necessary for the replacement of goods or money to counteract the forces of destruction; and when he has made

these deductions, he is supposed to be whole and to have provided for keeping his property intact so far as physical condition is concerned.

He is especially prevented in the Treasury regulations from taking into account in his statement of income, real and accomplished depreciation in the value of his stocks, bonds and other properties. If, for instance, he had bought a railroad stock or had bought a whole railroad and the value of that railroad had materially decreased, he could not charge that loss as against his next year's revenue and escape taxation. If we imagine a tax-payer owning a whole railroad and that railroad is as prosperous one year as in another, we cannot suppose that the Treasury officials would allow him to arbitrarily deduct from his income return, the sum which he might state he had suffered as a loss, owing to a theoretical advance in the composite age of his property.

Dr. Weber states immediately after his quotation of the Treasury Regulations, as follows:

“These regulations constitute the official recognition of the depreciation in productive plant generally understood in the professions of the engineer, the economist and the accountant, and one well summarized in the following quotation from a paper by P. D. Leake, author of ‘Depreciation and Wasting Assets.’ ”

The Regulations referred to are, we repeat, not a recognition of the lessening of value in a productive plant but a recognition of the necessity of preventing such lessening of value by replacement. If Dr. Weber means that depreciation in productive plant, in the sense of an inevitable and uncontrollable lessening of value, is generally understood in the profession of the engineer, the economist and the accountant, we must differ from him. A productive plant, well maintained by repairs and replacements, continues its productivity not on a lower but, in most cases, on a higher plane of efficiency than that of its original state. Its value in practice and economic theory corresponds closely with its productivity; and there is



therefore no lessening of value. Engineers and economists who are misled by false theory into recognizing a lessening of value based upon the abstract factor of age alone, are those who have not thought out thoroughly the economic problem involved.

Dr. Weber's quotation from Mr. Leake is as follows:

"The depreciation of productive plant occurring each year is an operative expense as much as operative wages."

This is misleading—the expense in a well maintained plant is incurred in correcting the depreciation and when corrected the depreciation no longer exists.

Dr. Weber's quotation from Mr. Leake continues as follows:

"And productive plant has two very marked characteristics, one being that, other things remaining the same, it tends to fall in present value to a willing purchaser, having equal opportunities for employing it, in direct relation to the proportion of its economic life period which has expired."

This also is misleading when applied to public utilities, because, as we have stated, there can be no calculated proportion or percentage of the life of a public utility plant said to have expired. If renewed and maintained, a public utility plant has no conceivable end to its existence; whatever age it may have in the aggregate or whatever composite age may be assigned to its parts, there can be no calculable proportion of its life expired and therefore no calculable proportion of value deducted from it on this account.

Mr. Leake further proceeds:

"And the other marked characteristic being that the advantages or consideration obtained by the undertaking from the existence of its productive plant are spread with approximate evenness over the whole period of the economic life of the plant. In assessing this operative expense, therefore, the nearest approach to accuracy will be obtained by estimating the life of each class of productive plant with due regard to all known facts as well as to probabilities, and basing the assessment upon this."

Mr. Leake, we believe, here means that the counteraction of depreciation by replacement should be provided from each year's gross income as evenly as possible. There can be no objection to this very desirable method if estimates can possibly be made, which will keep such charges even; but whether the disappearance or prophesied disappearance of items of equipment in the public utility should be provided for by the consumers of one period rather than another, is a question open to serious debate, as shown in our discussion of principles.

As quoted by Dr. Weber, on page 17, of his paper, Mr. Leake further states:

“The narrow view \* \* \* that if productive plant has been well maintained and works as well as ever, depreciation may be omitted from operative expense, or only provided out of surplus revenue when convenient, is a dangerous fallacy.”

What does Mr. Leake mean by depreciation? Does he mean the crippling and consequent loss of value which would result from not replacing the abandoned units of the plant? Of course such things must be provided for. No one with sense will dispute it. But they should not be over-provided for by the accumulation of a fund which cannot be used for the purpose, and in a continuous enterprise they may be provided for either after or before the abandonment, according as the circumstances of justice, sound reasoning, and practical necessity may dictate.

Here, as in many instances, Dr. Weber cites the mere use of the word “depreciation” as a support of his doctrines. No one would deny that a utility can suffer from a lessening in value, but no one capable of analysing the facts and understanding economic law can deny that, so far as physical plant is concerned, depreciation can be prevented by maintenance and replacement. To admit anything else would be to charge all investors and creators of public utilities with a species of insanity, for placing their capital in such enterprises.

From pages 17 and 18 of Dr. Weber's paper, we quote further, as follows:

"While correct depreciation accounting is important in any enterprise on account of its effect upon the equities of the stockholders in different years, it is doubly important in case of public utilities, where the expenses are charged against consumers through the rates. In so far as the policy of regulation is depended upon to take the place of competition in fixing rates near the normal cost (including a fair return upon investment), regulation must see to it that the costs or expenses of each year are correctly stated. Were a public utility in 1916 to purchase a supply of coal sufficient for 1917, it is manifest that no rate-fixing authority would compute 1916 costs on the basis of a two years' supply of coal or 1917 costs on the basis of no coal purchased. Any such neglect of cost accounting principles would result in an unfair discrimination between the customers of 1916 as compared with those of 1917. Proper cost accounting requires that the rates for each year shall provide merely for the expenses incurred for that year. The expenses include capital consumed whether the consumption is visible, as in the case of coal, or invisible, as in the case of longer-lived instruments of production. The courts in their decisions in rate cases as well as franchise tax cases have been explicit in this matter. Thus the United States Supreme Court in the leading case of the City of Knoxville vs. Knoxville Water Company (212 U. S. 1, 10) said more than seven years ago":

As to the first sentence in the above excerpt, we would say that what we are contending for is correct depreciation accounting. Accounting which will not pile up a fund impossible of use in keeping the plant continuously efficient, and whose only other functions would be the improper ones of providing for an artificial and false lessening of value, or a socialistic and unauthorized part purchase of the plant.

As to Dr. Weber's second and third sentences, instancing the coal pile, and decrying a discrimination against consumers of different periods, we would say that the case is not analogous to the replacement charge account in the sense of



a clear distinction as to what group of consumers is responsible for the using up of equipment. Nor are we advocating irregular charges to meet the replacement. Regularity is more or less a necessity, because the rates are comparatively regular, but we contend for the use of common sense in the imposition of those charges in the future, and in the assumption of them in the past, and contend that in no case should the company be saddled with the assumed duty of laying up an erroneous and useless fund out of last profits, nor should it be assumed that the accumulation of a useless permanent fund must be placed as a burden upon the consumers of the present.

In the last part of the above quotation, Dr. Weber talks of capital consumed, and of such things as visible consumption and invisible consumption. Who is to determine invisible consumption? And is the arbitrary measure of it to cause a useless tax, either on the investor or the consumer?

In large plants, the visible consumption is a comparatively regular and even arrangement. The invisible consumption, if there is such a thing, does not seem to disturb the even requirements for replacements. We contend for actualities and for the breaking away from erroneous theories which admittedly bring about results not in accord with common sense or economic law.

In the last sentence of the excerpt under consideration, Dr. Weber says: "The courts in their decisions in rate cases as well as franchise and tax cases have been explicit in the matter," and then refers to the Knoxville case.

If Dr. Weber means by this that the higher courts have given explicit support to the doctrine of theoretical depreciation, we must emphatically disagree with him, and in support of our disagreement here quote from the paper by Mr. Goetz, one of the legal staff of this very commission. On page 17 of his Philadelphia paper, as published by the Law Publishing Co. of New York, Mr. Goetz says, after referring to the Knoxville case and other leading cases:

*“It may fairly be said that there is no leading case expressly holding that functional depreciation should be included in addition to physical depreciation.”*

Functional depreciation is the bone and sinew of the whole doctrine of theoretical depreciation; without it the theory becomes one of actual depreciation, or unfitness for service, i. e. lack of efficiency. When the legal advisers of this commission can be quoted directly in opposition to Dr. Weber in his assumption of legal knowledge, it should be sufficient to convict him of a mistake, and of superficial study of this part of his subject.

Mr. Goetz also has this to say of the findings in the celebrated Consolidated Gas case:

*“In the New York Eighty Cent Gas Case the Special Master rules against any allowance for hypothetical functional or accrued depreciation beyond deferred maintenance, and allowed only 1.7 per cent of the cost of reproduction. He, too, followed the service efficiency theory.”*

We could give here other direct quotations from the legal counsel of this commission, refuting Dr. Weber's assumption of explicit support of his doctrines by the higher courts, and we do not suppose in his use of the word “courts,” he wishes to confine himself to those few cases, such as that of the Appellate Division in the King's County case. His words, unqualified, would not imply such a meaning. There are so many excerpts from the paper of Mr. Goetz, and so many decisions and opinions of the courts going to contradict Dr. Weber's reliance on their support, that we have made them a separate part of our presentation, as shown in the proper place.

Continuing on page 18, Dr. Weber gives a quotation from the celebrated case of the City of Knoxville vs. Knoxville Water Co. This is one of the most widely misunderstood valuation cases extant, and has been perverted extensively and dangerously in support of deductions in value on account of theoretical depreciation.

We will here quote the italicized part of Dr. Weber's extract of the case:

*"It (the company) is entitled to see that from earnings the value of the property invested is kept unimpaired, so that at the end of any given term of years the original investment remains as it was at the beginning. It is not only the right of the company to make such a provision, but it is its duty to its bond and stockholders, and, in the case of a public service corporation at least, its plain duty to the public."*

There can be no disputing this apparently simple statement, provided the court had defined what it meant by the value of the property. If it means service value of the property, not the money value, this statement can be accepted by those skilled in the analysis of the problem, and by service value, we mean the continued ability to give service of the original efficiency. This is the only kind of value that can possibly be steadily maintained.

So far as value in its proper and unqualified sense is concerned, it is impossible by any device of funds or charges to maintain it at a given level or standard. The value of the property, where absurdly assumed to be the second-hand value of its parts, is of course immediately greatly diminished by its installation. But the real value of the property as a whole, under the proper meaning of value, is subject to its net earning power and may be diminished or increased or remain stationary through circumstances entirely too potent in their influence upon the utility to be taken care of by any segregation of a part of the gross earnings.

We take it that the court did not intend to command an impossibility and that the only reasonable interpretation of its meaning is that it is the duty of the company to provide for the replacement of its physical property and for the continued service to the public in its original efficiency. The court cannot mean that it is the duty of the company to foresee changes in the value of its plant due to major and extraneous forces controlling value. If the words of the quotation



were here taken literally, it might mean that it was the duty of the company or its managers to foresee and provide for the effect on the value of its plant of hostile legislation, incompetent regulation or the rise or the possible fall in the market price of important material used in the equipment or operation.

Evidently the court means that replacement must be provided for. The fact that it is universally conceded that replacement of capital can, of right, be provided for out of rates paid by the consumer, prevents the value of the equipment to be replaced from falling at any time in its history below its cost. It is then for someone to decide (and in the absence of regulation there is no one to decide but the company) as to when the cost of replacement is to be taken out of the gross earnings and by what arrangement the charges in the rate are to be most justly and evenly and practically distributed.

It is only by the narrowest prejudice that it could be assumed that a company in the past should provide a fund to compensate for an arbitrary reduction in value over and above provision necessary for replacement and it is a false conclusion to read any such absurdity into the court's opinion in the Knoxville Case.

Near the close of page 18, Dr. Weber has the following:

“The court has reaffirmed this decision in all subsequent rate cases. Thus in the important Minnesota rate cases (230 U. S., 1913) the court expressly disapproved certain findings of the Master because of his failure to deduct accrued depreciation from the estimated cost of reproduction new.”

As to Dr. Weber's assumption that the court in the Minnesota Rate Case disapproved certain findings of the Master because of his failure to deduct accrued depreciation, we can say that in the whole opinion of the court in that case there is no mention of *accrued* depreciation.

What does Dr. Weber mean by *accrued* depreciation, and why should he attempt to fasten that term on the court, when

it is nowhere used in the decision? Does he mean by accrued depreciation a measure of an accrual in a hypothetical fund which, according to his doctrines, would measure an amount to be confiscated from the investment, or does he mean actual depreciation resulting from neglect to make proper replacements when the condition of the property called for it?

It should be remembered that the question of "depreciation" was not an important factor in the decision of the Minnesota Rate Case. The court is very general in its expression and nowhere approaches any discussion or opinion as to methods or measures of depreciation. All it does is to recognize in a rather indefinite way that there might be such a thing, and to say that some calculation of it, *if it existed*, should have been submitted with the Master's report. As close as the court comes to any detailed notice of a depreciation analysis is found in the following words:

"And when particular physical items are estimated at so much new, *if in fact they be depreciated*, this amount should be allowed for."

If the economic truth had been explained to the court that an item of equipment forming a part of an operating utility can have two and only two kinds of value: one its second-hand value, as separated from the plant, and the other its proportionate but indivisible share in the value of the property as a whole, it is very probable that he would have seen the absurdity of trying to estimate the value of the whole property by adding together the second-hand values of the separate parts, and, provided the items were contributing toward the service in their original efficiency, would have decided in the negative the question: "If in fact they be depreciated."

The decision in the Minnesota Case does little else than criticize the work of the Master in offsetting in an indefinite way any possible depreciation against appreciation by "adaptation." The figures which might result from a study of depreciation evidently did not appear as large ones in the mind

of the court, and they were not a controlling factor in the decision as evidenced by the following passage near the close of the opinion:

“That while the methods of estimating value, and of apportionment, which have been disapproved in the discussion of the cases of the other companies, are subject to the same objections in this case, so far as they have been employed, the margin of error which may be imputed to them is not sufficiently great to change the result.”

From this it is clear that the court in no way can be assumed to have had in mind the various calculations of theoretical depreciation (sometimes called “cut throat” depreciation). The court, in short, did not consider the possible deduction for depreciation as of importance enough to make a real study of the problem and evidently had in mind such a method of depreciating as was used in the Consolidated Gas Case, where, as shown elsewhere, the deduction was negligible, and where the Master, in disapproving of theoretical depreciation says:

*“The fact thus being that the plants are in good order and operating efficiently, it does not appear reasonable for the purposes of this case to charge them with a theoretical deficiency so great as, if actually existing, would make their successful operation a practical impossibility.”*

Following his mention of the Minnesota case, Dr. Weber proceeds as follows:

“The New York courts have arrived at the same conclusion in cases involving the franchise tax law. Thus as long ago as September, 1908, the Appellate Division stated that:

‘The net income of a corporation for dividend purposes cannot be determined until all taxes, depreciation, maintenance and upkeep expenditures have been deducted; otherwise the dividend is not paid from the earnings but by a depreciation of the capital account’. (People ex rel Jamaica Water Supply Co. vs. State Board of Tax Commissioners 128 Appellate Division, 13.)”

Our comment on this is only that the word “depreciation” must be taken here to mean replacement as iterated and reiterated.



On page 19, Dr. Weber states as follows:

“The earlier decisions restricted the depreciation allowance to physical depreciation, but the more recent decisions have included functional depreciation.”

We do not agree with Dr. Weber's statement of the trend of decisions. But, whatever the facts as to the chronology of certain court decisions, we believe that it may be asserted with truth that among the commissions, who after all are bodies charged with the real study of the problem, there has been, with the exception of the New York Commission, a constant trend, as each commission has gained in experience, to place less and less emphasis on the doctrines of theoretical depreciation.

New commissions generally start off with only a superficial knowledge of the matter of straight line, or sinking fund, or some other half-thought-out theory for impairing the earning power of the capital honestly invested, and still efficiently serving the public. We do not claim that these theories are used with conscious knowledge that they are wrong, but the strong and very human desire of every new commission to please the press and the public by reductions in rates, requires a very strong character indeed to reject, or even to critically question a theory which creates ready to hand a weapon or tool by which values may be cut *ad libitum*, and the cuts at least superficially justified.

With the passage of time, however, and the gain in experience of some of our commissions, we find an increasing number of expressions and opinions going to show that the theories we are opposing are being questioned and repudiated as unsound and unjust.

Massachusetts is perhaps the oldest habitat of the regulation of utilities by commission in the United States, and its opinions we submit are worthy, from long experience, of serious consideration. We quote as follows from an opinion of the Massachusetts Public Service Commission in the Middlesex and Boston Rate Case, Oct. 28, 1914:

“If regulation is to limit (as it should) the profits of stockholders to a moderate return, not greatly in excess of an investment rate, regulation must also protect, so far as it reasonably may, all investments honestly and prudently made and properly managed in the public service; otherwise there will be no such investments. It is entirely clear that in the long run the rate-paying public, as well as the investing public will be best served, if regulation makes its *fundamentally guiding principle* an attempt to protect *investments* honestly and wisely managed. Any other theory involves essentially injustice, tends to make the development of our public utility companies, a speculation and not an investment, operates as a premium upon various kinds of fraud; invites into public service undesirable manipulators instead of sound, level-headed business managers, makes every rate case an almost interminable and labyrinthine inquiry into values, with endless conflicts between so-called experts.

“What the public interest of this commonwealth obviously needs is such regulation and such management of our public utilities, that the rate-payers may always feel assured that their rates are based upon making a fair and adequate return upon the capital which has been invested for their convenience and benefit; that purchasers of the securities may know that within the limits of sound management and reasonable and just regulation, their investments are secure; a system in which a premium is put upon good management; and discouraging condemnation is visited upon bad management; a system which is simple and capable of economical and efficient administration.”

In the case of the Haverhill Gas Light Co. the Massachusetts Board of Gas & Electric Light Commissioners has this to say about depreciation allowance:

“Assuming the property provided by the stockholders has been kept in good condition, any future depreciation allowance is the measure of those demands which intelligent management and a wise foresight find necessary for maintaining the property at its normal efficiency. Anything less than this will tend to injure the stockholders; *anything more may unjustly burden the consumers.*”

In the Terre Haute Water Works case, the Indiana Commission (Dec. 17, 1915) says:

“Counsel for the complainants have fallen into a common error in assuming that the cost of reproduction of the property less depreciation is the actual value of the property for rate-making purposes. This is not true. It may be the present value and it may not be. When we have ascertained the cost of reproduction less depreciation, we have done nothing more than establish one important item of evidence to be considered by the Commission in determining the fair and reasonable value of the property.”

In the case of the Town of Antioch vs. The Pacific Gas & Electric Co. (July 6, 1914), the California Commission says:

“Likewise, if such property originally cost an amount honestly and wisely expended, considerably in excess of what it would now cost to reproduce it, the establishment of a rate upon estimated reproduction cost would be equally unfair to the utility. *It is unfair to base a return entirely upon a depreciated reproduction value, such depreciation being computed from the average age of the component parts of the system, which though in use for several years, are still equal to 100 per cent efficiency.*”

The Washington Public Service Commission, in the case of the Pacific Telegraph & Telephone Co. (April 25, 1916), in a long and able opinion in which the terms “actual performance” and “detriment” are used as meaning the actual sacrifice of the investor in serving the public, comes to the following conclusion:

“We therefore adopt and approve the plan suggested by respondent, that rates are to be based upon facts, rather than theories; that “fair value,” if the words are to be used in the usual and ordinary sense, cannot be the basis for rates; that a utility is entitled to a reasonable compensation based upon the reasonable and necessary detriment suffered in preparation for and in the service of its patrons, and not upon values created by the public. It is not to be conceived that a utility will, in the expenditure of its money, under modern conditions, for the construction of its plant or its extension, pay more for the implements or property used than is necessary.”



The Montana Public Service Commission (6th Montana p. 195) in the case of the Helena Light & Railroad Co. has this to say:

“Whether or not the valuation thus obtained is subject to depreciation, and if so, to what extent, is a matter of expert opinion, depending upon the amount expended for maintenance, renewals and permanent improvement work; the period during which such amounts were expended, and in general, the “state of repairs” of property. It will be obvious that there can be no fixed percentge of depreciation applicable to a utility that has been “kept up” from year to year by constant effort, and the purchase of improved devices, as compared with one that had been allowed to deteriorate through neglect, hence the principle of an arbitrarily established measure of depreciation is untenable.”

The Wisconsin Commission, which is one of the oldest, next to Massachusetts, in the work of valuation and regulation, stands in a peculiar position in regard to theoretical depreciation. While it, perhaps more than any other agency, is responsible for the spread of this erroneous doctrine among the commissions, especially of the Middle West, it has seldom directly applied its own doctrine in obtaining results, but has contented itself with theorizing and in its cases, after figuring up the hill and down the hill, and presenting this figure and that figure, will generally wind up in a paragraph stating that nevertheless and all things considered, etc., etc., we think a return should be based on such and such a figure, the connection between such and such a figure and the former lengthy calculating and discussing not being very clear.

As a rule the commission has been fortunate in reserving its theory for talking purposes and using its better judgment for its acts.

Mr. Whitten in his work, “The valuation of Public Service Corporations,” has this to say of the Wisconsin Commission:

“It seems to be true that in almost all cases the fair value fixed by the Commission has in fact been not very far from the cost-of-reproduction-new.”

On page 19, Dr. Weber quotes the decision of the New York Supreme Court, in *People ex rel, Brooklyn Heights Railroad Company*, 69 Misc. N. Y. 659, and also mentions the *Kings County Lighting Company vs. Public Service Commission*.

It would appear that we have here a confused intermingling of the idea of depreciation itself and the provisions to prevent or counteract depreciation. Throughout the whole discussion there is a tendency to quote excerpts which are dealing with the charges, whose sole use is to prevent depreciation, as if they were authorities for the idea that depreciation could not be prevented, and that therefore the investor must be allowed to earn on some amount less than his investment.

This is due to the loose and varied use of the words, depreciation, depreciation allowances, etc., etc. by the different writers on the subject, leading to a confused idea that if there are depreciation charges there must be depreciation, while in fact the charges are for the purpose of preventing the depreciation, by enabling the company to make proper replacements, and under proper management this purpose is accomplished.

On page 20, Dr. Weber, speaking of the *Kings County Lighting Company vs. Wilcox*, says:

“The court gave careful consideration to the precedents established in the special franchise cases and found them to be in substantial agreement with the ruling of the Supreme Court in the *Knoxville* case, which it quoted at length and then concluded as follows:

“ ‘This quotation completely answers the contention on the part of the relator that no allowance should be made for depreciation, because the evidence is that the efficiency of the relator’s plant continued to be equal to 100%; since it is manifest that deterioration to some extent must precede the loss of efficiency, and the mere fact that the efficiency remains stable does not necessarily contravene the other fact that deterioration has set in.

“ ‘In the case at bar the commission followed the rule laid down by the Court of Appeals in *People ex rel. Manhattan Ry. vs. Woodbury* as to the method of estimating the depreciation and the rule indicated by the *Knoxville* case of

deducting the thus ascertained amount of accrued depreciation from the cost of reproduction new, to ascertain the present value of the tangibles in use. We think this entirely proper, especially in view of the fact that it allowed appreciation in land values.' (People ex rel Kings County Lighting Co. vs. Wilcox et al., 156 App. Div. 616.)

The first paragraph in this quotation from the court states, "Since it is manifest that deterioration to some extent must precede the loss of efficiency, and the mere fact that the efficiency remains stable does not necessarily contravene the other fact that deterioration has set in."

This statement can be very severely criticised, if we ask ourselves of what deterioration consists. If the mechanism of the utility is performing its service with full efficiency and if under its provisions for replacement it is evident that it will continue indefinitely to do so and in addition be kept fully abreast of modern practice in what has it deteriorated or what reasonable expectation is there that it will deteriorate?

Our disagreement with the dictum of the court above quoted, is substantiated by the opinion of the higher court in the same case, and in order to have made a complete statement it should have been pointed out that the dictum of the Appellate Division on the subject of depreciation and in fact in its theories of valuation, and those of the Commission was severely criticised, by inference at least, by the opinion of the Court of Appeals of New York handed down March 24, 1914 in this same Kings County Lighting case (See abstract). It is hard to understand how the Appellate Division could have overlooked the plain words and evident intention of the New York Public Service Act, stating clearly and emphatically that investment must be the lowest measure of the amount of capital entitled to reasonable returns (See Kings County Case Court of Appeals).

It is evident that the Court of Appeals did not overlook this important clause of the statute and it felt called upon to insert in its opinion a criticism of the valuation methods of



the Commission as to depreciation, although the Commission had not made an appeal under this specific point. The fact that the court went out of its way to make the criticism, which it did, would appear to the layman at least as even stronger than if the question had been decided by it.

Dr. Weber states as follows, on the bottom of page 20 and the top of page 21:

“Nearly three-quarters of a century ago the Legislature of New York recognized depreciation as an item of expense. The form of annual report prescribed in the General Railroad Law of 1850 included among the expenses of maintenance four depreciation accounts. The tendency of regulations promulgated by state boards under authority of law, together with the decisions of the courts in the past ten years, has been to define more carefully the method of accounting for depreciation.”

Dr. Weber's use of the phrase, that “depreciation is an item of expense,” would imply that it is an expense for something and that there is some return for the expenditure. If it does not mean that, he should use the word ‘loss’ and say that depreciation is an item of loss; but, if throughout the years he speaks of, the different Boards and the Legislature of the State have had in mind, depreciation as the cause of expense, we will accept his statement, provided it is admitted that the expense incurred is for some purpose, and accomplishes its purpose of counteracting the effect of depreciation. If such expense does not counteract depreciation, then it is useless and would not be a legitimate expense.

On page 21, Dr. Weber says:

“If the commission were now to adopt the recommendations of the Committee regarding the elimination of the depreciation account, it would in effect reverse an established policy of the State. The substitute proposed calls for the inclusion in operating expenses of the average cost of renewals, but says nothing as to the period for which such average cost is to be computed. It therefore means little or nothing, according to the interpretation of individual managers. In effect it denies the existence of depre-

ciation during the period of accrual and prior to the actual realization thereof at the time plant is retired from service. A public utility now starting in business might conceivably operate for ten years without incurring any considerable retirements or replacements, although its property would deteriorate and its capital be consumed in every year of that period. The change now proposed would permit such a company to ignore depreciation as an element of expense and publish financial statements that would mislead stockholders and deceive investors and the public it serves. Cases of this kind are too numerous to mention; the history of corporation finance is strewn with the wrecks of public utilities caused by neglect of elementary accounting principles regarding depreciation."

We cannot agree with Dr. Weber that "If the Commission were to adopt the recommendations of the Committee regarding the elimination of the depreciation account as Dr. Weber evidently defines depreciation, it would, in effect, reverse an established policy of the state," unless Dr. Weber can prove that it has been the established policy of the state to assume that, in spite of all care, maintenance and replacement in public utilities and in spite of the fact that said care, maintenance and replacement will preserve the efficiency and prolong the life of the utility plant to a practically infinite length, there will be a lessening of value, due to a purely theoretical assumption of a condition not inherent in the physical plant. We do not believe that such was the assumption of the State authorities, and if in the State regulation of rates or accounts, an impairment of value is brought about, the result is due entirely to the method and theory of regulation and not to any natural causes.

This Company objects to the naming of a "depreciation account", because it believes that if proper charges for replacement are collected and properly expended, there will be no depreciation; and it objects to the assumption that in the past there was a necessity for the accumulation of the funds in excess of the amount actually necessary to provide for replacements. It most certainly objects to the assumption that

the accumulation of any such fund or the demand for such a fund, pre-supposes or causes or is evidence of a lessened value of its plant.

Dr. Weber here gives the old and much used instances of the theoretical utility plant now starting in business as an entirely new plant and the consequent disastrous result of not piling up a large fund to meet a situation which in practice never occurs.

Dr. Weber will, we believe, admit that, in the hypothetical instance of his new plant without replacement expense, if the hypothetical condition is adhered to, there will be an accumulation of replacement charges which can never be used for replacement unless charges in the rate are at some later date temporarily suspended.

The only argument for the hypothetical collection of such charges, and that is not a sound one, is that unless such charges are made, the consumer in the initial stages will have lower charges than some later consumer. Hypothetically, this may be logical; but if the fund collected is ever to be used for its only legitimate purpose (that of replacement), its later use will cause the later consumer to be relieved of charges temporarily. It is seen that even under the hypothetical conditions, there can be no theoretical leveling of the hypothetical burden, unless the permanent uselessness of the fund is acknowledged.

So much for the hypothetical argument. Now what are the facts?

It is well known that new enterprises, on account of the many exigencies of their initial stages, almost invariably require higher rates to produce less profits than those which have become well established. The consumers of the initial period stand the burden of those rates, and there is also an extra burden generally borne by the investor. Would Dr. Weber, in order to round out his theory, have them take up an added burden for the purpose either of establishing a need



less fund, or of helping out a later group of consumers who are in much better condition to carry their proper share of responsibility?

While it is true that there are numerous instances of public utility properties showing a very greatly deteriorated or run down condition at times, when they have met financial disaster, and while no doubt in some cases this disaster was caused by dividends which should have gone to maintenance and replacements, yet in most cases of disaster, the run down condition of the properties has been an effect rather than a cause and has resulted from actual inability from revenue to properly maintain the property.

On page 22 Dr. Weber quotes somewhat at length from an address by Mr. A. M. Harris, of the Investment House of Harris, Forbes & Co. Mr. Harris, in speaking of changes in equipment in the history of the street railway companies, says:

“What has become of the investment which was represented by the old cars and equipment that has, in the comparatively short period mentioned above, either worn out or become obsolete and found its way to the junk pile? The answer is plain, if the day of their obsolescence was not anticipated and provided for through some adequate depreciation reserve.”

Mr. Harris uses the words “depreciation reserve” where he evidently means “replacement reserve”. He is pleading for a simple provision for replacement and he overlooks the fact that abandonment for obsolescence should be charged to subsequent operation.

Dr. Weber has taken advantage of Mr. Harris’s careless use of the word depreciation to obtain support for the theories he advocates. Mr. Harris evidently did not intend to advocate that, in addition to providing for replacement, the company should also provide for a reduction in value of its capital caused wholly by regulation based on the theory of so-called accrued or functional depreciation. If Mr. Harris had had this in mind together with his other instances of disaster, he

could not have seen anything but ruin to any investor in street railways and other public utility enterprises.

As a matter of fact, in the rapid changes in equipment in the history of street railways and electric light industries, it was humanly impossible for the managers to provide for the violent supersessions of property before they took place. Rates for street railways are generally fixed at 5c. There was no way in which they could follow out the duty laid down in the Knoxville case, of increasing their charges, there was also no way for them to foresee such great waste of property as took place, for instance, in the substitution of the electric railway for the cable railway. It was only in cases where large dividends were declared and the properties "milked" that blame could attach to the management. In the light of adequate reasoning, it would now appear that in numbers of these cases, the cost of property discarded on account of violent supersessions should have been borne or should now be borne by the consumer using the plant after the occurrence of the violent supersessions.

On page 23, Dr. Weber makes the bald assumption that the more eminent representatives of the engineering profession are in agreement with his statement of the position of the Special Committee of the American Society of Civil Engineers, in which, (quoting Dr. Weber): "it expressly stated that the depreciated value of property should be the basis for rate-making."

Dr. Weber should have followed the history of this so-called report and the developments which have since become evident in connection with it.

The tentative report of a committee of the Society was issued to members, in confidential advance copies, during December, 1913; and at the annual meeting in January, 1914; it was presented to the Society for approval or disapproval. Immediately upon its presentation, it was voted by a large majority that the report should *not be adopted*. The reasons for this vote were the features of the report dealing with depre-

ciation. It was sent back for further consideration and a number of changes have since been made in the committee. For nearly three years now, the committee has been trying to agree upon a report; and it is well known that its attitude on the depreciation question, when it is again submitted, will not be in accord with the former tentative report.

To show that the attitude of the Society is not in accord with the tentative report as submitted, it should be enough to say that no more copies of it can be obtained from the Society. The following is a copy of a resolution of the board of directors, which plainly shows the present status of the document which has often been erroneously or insincerely quoted as representing the official opinion of the American Society of Civil Engineers:

“On motion, duly seconded, the Secretary was instructed not to issue any further copies of this Report, and in replying to Director Cooke he was instructed to say that the Report, which was a Progress Report, has been discussed for a number of months, and that the Committee is now engaged in its radical revision, and that therefore it is inexpedient that any additional copies of it should be circulated.”

Dr. Weber quotes, on page 23, from Mr. Bion J. Arnold, as follows:

“In speaking at the convention of the American Electric Railway Association in October, 1915, Mr. Arnold said, among other things:

“‘It is a curious commentary upon the rapid progress of utilities that some operators still deny the existence of depreciation and solemnly proclaim their ability to keep a property in a condition 100 per cent good, whatever that may mean. It can be proved that, when a property is old enough so that the cycle of life of its longest-lived depreciable element has expired and a renewal is due, the average ‘condition’ of all the *depreciable* elements cannot be more than 50 per cent good, i. e. 50 per cent of the service value (plus salvage) and that a higher percentage would be economically unsound. This does not mean half of the total



investment has disappeared, because some elements, such as land values, do not depreciate. With 85 per cent depreciable and 15 per cent salvage, the 50 per cent theory would result in an economical over-all condition of only 65 per cent.

\* \* \* \* \*

“Until a better understanding is had by the industry in general, it is recommended that the straight-line method in its simplest form be studied in connection with the establishment and maintenance of a renewal fund so invested as to earn interest at as high a rate as possible.

\* \* \* \* \*

“It is manifestly unwise for a fund to earn only 2½% in the bank while it could earn from 5 per cent to 7 per cent in the property. Under proper safeguards as to public supervision of investment there is no logical reason why the fund should not be thus reinvested for extensions and betterments, thus automatically decapitalizing as much of the property as is constantly disappearing.”

This is no doubt, an authentic quotation from Mr. Arnold, but its force is seriously impaired in view of the following quotation from another paper of Mr. Arnold's:

Mr. Bion J. Arnold, 1911, before the American Institute of Electrical Engineers report of 1911, says: (page 1311)

“The fundamental principle underlying that theory is this: That the public should pay, for instance, to a street railway corporation, the actual cost of producing the service which is given to the public, plus a fair return upon the actual capital necessary to create the property, and also that necessary to continue its operation.”

At p. 1314:

“Many communities will attempt to fix a rate upon the depreciated value of the property. I think that is a short-sighted policy from the standpoint of the public, because if the rate is fixed on that value the company has no chance to raise enough capital to put its property in first-class condition, to give first-class service.”

On page 25, Dr. Weber states:

“Approximately fifteen of the States have enacted laws requiring public utilities to keep depreciation accounts in

accordance with rates fixed and rules promulgated by State Commission. The New Hampshire Act of 1913 may be quoted as typical; section 1 of Chapter 98 being in part as follows:

“ ‘Every public utility shall carry a proper and adequate depreciation account whenever the commission shall determine that such depreciation account can reasonably be required, and shall so order. (c) Every public utility shall conform its depreciation account to such rules, regulations and forms as may be prescribed by the commission. The depreciation fund may be expended in new construction, extensions or additions to the property of the public utility, or invested, and if invested, the income of the investment shall be added to the depreciation fund. Such fund may be used only for new construction, extension, or additions to physical property or for renewing, restoring, replacing or substituting depreciated property in order to keep its plant and system in a state of repair and efficiency. (d) No public utility shall declare or pay any dividend except out of net corporate income, and except after setting aside such depreciation reserve, if any, as it may carry in compliance with the provisions of paragraph (e); *provided, however*, that this paragraph shall not be construed to prevent the payment of dividends in any year out of any undistributed balance of such net corporate income previously accumulated.’ ”

In a large majority of the Public Service Acts having a clause relating to accounting for depreciation, there are clauses, as in paragraph (c) of the above quotation, providing that all the income from the investment of any balance in the depreciation fund shall go back into the fund. This very provision in itself would preclude in reason (although it has not always done so in actual practice of the commissions), that there should be any deduction from the measure of the capital of the utility on account of accrued depreciation in value supposed to be offset by the accumulations in the fund. For, there can be no deduction from value without compensation to the investor for such deduction; otherwise, no investor would place his money in public utilities and an economic law would be violated. If the earnings of the accumulated

fund are not to go to the investor as an offset to the earnings on that part of his investment which has been deducted for so-called accrued depreciation, then the deduction is made without compensation, and, as we have said, would quickly prevent further investment and cause confiscation of the investment already tied up in the utility.

On page 25, Dr. Weber, in referring again to New Hampshire, states as follows:

“In construing this Act, the New Hampshire Commission encourages the investment of the depreciation fund in extensions and betterments until such time as it is needed for replacements. Thus in its decision of December 8, 1915, on the application of the Exeter & Hampton Electric Co., for authority to issue bonds, the Commission said:

“ ‘The expenditure by a utility of its depreciation fund in extensions or additions to its property is recognized as proper, and has received the sanction of the legislature. \* \* It is not to be understood that the depreciation fund is to be permanently invested, but only until such time as it will be needed for the purpose for which it is designed, viz., in replacing worn-out and obsolete portions of the capital property. During this period it should share in the net profits of the business on the same terms with the stockholders, and the income so derived should go to augment the depreciation fund. When the utility wishes to get the depreciation fund out of the plant investment to use it in making replacements, it may ask to capitalize the amount so used not exceeding the amount of the depreciation fund so invested.’ ”

This quotation from the decision of the New Hampshire Commission clearly supports our position,—that there should be no deduction from the earning power of the company on account of accrued depreciation; for it is clearly recognized here that the depreciation fund is a temporary affair and hence there would be no justification for a deduction of the earning power of the property on account of it. It is also clearly implied here that any accidental collection of a fund is only intended to remain until it is used and that it is



explicitly collected for the purpose of being used in making replacements.

It should be the object then of a well designed set of replacement charges (so-called depreciation charges) not to burden the consumer with a plan for accumulation to last any longer than is absolutely necessary. This desirable end is aimed at in our contention, that, as nearly as possible, there should only be set aside from the gross revenue enough in the way of so-called depreciation, or rather replacement charges, to take care of actual replacements needed in the more or less even carrying out of the policy of a well-managed company.

In the next paragraph of his paper, on page 26, Dr. Weber himself says:

“The Indiana Law of 1913 provides that moneys in the depreciation fund may be temporarily invested in betterments and extensions subject to this qualification.”

And he clearly recognizes the temporary character of any accumulation in the so-called depreciation fund. He further quotes from the Indiana law:

“ ‘In no event shall the moneys expended from the fund for new constructions, extensions, or additions to the property be credited to or considered a part of the capital account of any public utility and should always be charged against the depreciation fund.’ ”

Here it is quite clear that an accumulation in the so-called depreciation fund is not intended as a compensation for a lessening of value in the capital engaged in the service of the public.

Dr. Weber further, on page 26, states as follows, in regard to Massachusetts regulations:

“Massachusetts requires municipal gas and electric plants to include in operating expenses an allowance ‘for depreciation equal to 3 per cent of the cost of the plant exclusive of land and any water power appurtenant thereto or such smaller or larger amount as the Board of Gas and Electric Light Commissioners may approve.’ So much of the depreciation fund as is not required for replace-

ments may be used for repairs and for additions to property, and the plant is not permitted to create obligations for additions while there is a surplus in the depreciation fund (Revised Laws, Chapter 34, as amended, 1908. The depreciation rate was reduced in 1906 from 5 to 3 per cent.)”

This statement of the Massachusetts position clearly indicates a definite effort to prevent accumulation in the depreciation fund, and so far as the position of the Massachusetts Commission in regard to making deduction from the value of the property on account of so-called *accrued* depreciation, we give in another part of this paper their decision exactly to the contrary.

In the last paragraph, page 26, and the first paragraph of page 27, which are not copied here, Dr. Weber pleads the public determination of rates, and for the enforcement of uniformity of accounts in the State of New York.

This Company is not objecting to such action on the part of the Commission, but it pleads that in determination of rates, provision for counteracting depreciation be made in accordance with experience, good sense and reason, and that it be not required to burden its consumers with charges to create a permanent fund designed to counterbalance a purely theoretical deduction from the real and just earning power and value of its capital, and it also objects to the assumption that it should in the past have collected or set aside any such permanent fund for any such fanciful purpose.

On pages 27 and 28, Dr. Weber states:

“General Amortization: Every electric corporation shall include in its expense accounts depreciation charges for the purpose of creating proper and adequate reserves to cover the expense of depreciation currently accruing in its fixed capital. Until otherwise ordered, the monthly accrual shall be at the rate of  $3\frac{1}{2}$  per cent per annum of the total fixed capital of the accounting corporation. This amount shall be allocated according to a rule adopted by the ac-

counting corporation subject to the approval of the Commission, among the following subdivisions:

Amortization of Intangible Capital.

Depreciation of Plant and Equipment:

- A. Production capital.
- B. Transmission capital.
- C. Transformation and storage capital.
- D. Distribution capital.
- E. Utilization capital.
- F. General capital.

*Extraordinary Repairs Transferred to Reserve—Cr.*

“Unless the depreciation charge is to be combined with the average cost of repairs as at present, a credit account should be provided for the purpose of drawing upon the depreciation reserve for extraordinary repairs.”

The very heading of this claim as “General Amortization” suggests that Dr. Weber has in his mind one of the ghosts which seem to be continually haunting the advocates of deduction from value on account of theoretical depreciation, that is, that the capital of a public utility should be amortized.

It is true that the expense incurred in replacing abandoned equipment should be provided for from rates collected at different times; but this is in no sense amortization, it is simply a repayment to the company by the consumer for the replacement of worn out capital, and it is quite incorrect terminology to name this process of piecemeal repayment “Amortization.”

It is true that if a part of the capital is in reality abandoned and the whole capital thereby lessened, then there should be an amortization; but in growing or prosperous utilities, this does not occur. The capital instead of decreasing is constantly increasing.

A further heading in the above quotation is called “Amortization of Intangible Capital.” Intangible is just as true capital serving the public as any other kind of capital. What



fundamental reason is there for amortization, so long as it is serving the public? As a rule, capital invested in intangible assets is less subject to disappearance and therefore to replacement than any other kind of capital, for instance, the outlay for legal expenses and organization expenses in the beginning of a company, becomes an investment which serves the public throughout the whole future of the utility. It is always useful and is being used by the consumers in different periods.

The only possible excuse for amortizing against intangible capital, or any other capital serving the people, would be the desire of the consumer, at some time in the future, to buy part of the utility. We submit that there is no such desire on the part of the customers of utility companies to buy a portion of the property, and there is no desire on the part of the company to sell a part of its plant or business.

By such accounting as Dr. Weber's paper advocates, the customers would be forced to buy a thing which they do not want or at least for which they have officially expressed no desire, and a purchase would be consummated by officials without authority. Moreover, this method is a subterfuge and a fraud upon the public and upon the utility, serving only the purpose of satisfying certain theorists who are, at heart, socialists, if they understand what they are doing, and who are attempting, by the subterfuge and fraud, to initiate partial public ownership without authorization from the public.

Dr. Weber uses, in the above quotation, the following sentence: "Every electric corporation shall include in its expense accounts depreciation charges for the purpose of creating proper and adequate reserves to cover the expense of depreciation *currently* accruing in its fixed capital."

This sentence may have a double meaning, but there would be no objection to it if it were clearly understood that the expense referred to is the expense of preventing depreciation by replacement, and further, if the words "currently accruing" mean that the depreciation is taking the place when the capital actually ceases to serve the public and not as some arbi-

trarily fixed time before it ceases its usefulness and while its value in service is practically the same as when the equipment it represents was new.

On pages 28 and 29, Dr. Weber writes as follows:

“Extraordinary Depreciation: Another account may be provided to amortize any amount which the accounting corporation may be authorized by the Commission to carry in suspense on account of extraordinary casualties and unanticipated reconstruction.

“The details of such accounts have been worked out in the telephone classifications now in general use and need not be repeated here.

“Such further changes in the text should be made as will restrict the application of the moneys thus reserved to the purpose of maintenance or improvement of the property devoted to the public service. Any other use of the fund should be subject to the approval of the Commission upon the application of the corporation.”

\* \* \* \* \*

“The foregoing is intended to be a constructive criticism of the Committee’s reactionary proposals. Incidentally, it may be observed that the adoption by the Commission of the Committee’s recommendation to eliminate from the accounts provision for depreciation might at some time be made the basis of an argument by a new company management directorate that the reserves already created out of operating expenses may properly be reduced and in part returned to surplus. In fact, the entire amount set aside up to the present time might be claimed as surplus if depreciation has ceased to exist as the Committee argues. When it is considered that one company alone has created for amortization or renewals or contingencies reserves in excess of \$20,000,000, representing part of the contribution of consumers over and above a fair return upon investment, the possibilities of financial manipulation are manifest.”

The last part of this paragraph shows clearly one of the socialistic tendencies of the “accrued theoretical depreciation” theory and is consistent in its carelessness of fact; for the truth is that no one company has such a fund on its books.

The implication here is that a \$20,000,000 fund referred to belongs in some way to the consumer and that large profits in the past are a wrong to be now corrected by *ex post facto* proceedings.

If under legal rates charged in the past, companies have refrained from declaring dividends from profits accruing under those legal rates and have put away these profits into surplus accounts with any accounting name whatsoever attached to them, it does not change the fact that these profits from legal rates are legally acquired property and belong to the owners of the company.

The company would be perfectly right in using the surpluses referred to in any way it seems fit so long as replacement is provided for. Dr. Weber represents the accumulated reserves he refers to as a contribution by the consumers of the past. They are nothing of the sort, in the sense that present consumers have any claim upon them. They were in reality accumulated from the stockholders by the withholding of profit, profit legally made under rates permitted, sanctioned and prescribed by public authority. How can any ownership in these accumulations be asserted in behalf of present consumers who did not even pay the rate which produced them?

Dr. Weber, on page 29, concludes his paper with the following paragraph:

“The Committee argues that a depreciation charge may burden cost and increase rate to consumers. The consumer of gas or electricity in New York City is not in the habit of looking to the companies to safeguard his interest. It needs little argument to convince the consumer that the omission of proper allowance for depreciation will not rebound to his benefit when he is obliged to pay in the rate a return upon the value of the property without any deduction for depreciation.”

The last sentence in the above quotation shows clearly the purpose of the accrued depreciation theory. If there is to be a deduction from the earning power of the company and a



deduction from the value of its capital, capital cannot, by any stretch of imagination, have been justly treated, unless this deduction has been compensated for by the consumer. This is nothing but a partial buying of the property by the consumer. In order that this compensation may be made, it is plainly necessary that collection must be made from the consumer, not only to make replacements as they are needed but also to pay the investor for the deduction from his capital as contemplated in Dr. Weber's paper. It is this phase of the whole question of depreciation that this Company objects to; for in the past there has been no supposition that the consumer paid anything for this purpose and therefore any deduction from present property on the pretext of the lessened value when the property has been perfectly maintained and replaced, amounts to the confiscation of a part of the property of the investor. It can mean nothing else; and as for the future, any provision for the repayment to the investor for any such deduction in the value of his capital is a useless or fraudulent burden on the consumer, one which experienced utility men foresee will be difficult to collect.

(Signed)

JAMES E. ALLISON.

APPENDIX.



Part III.

EXCERPTS FROM DECISIONS AND AUTHORITIES.





## Part III.

## EXCERPTS FROM DECISIONS AND AUTHORITIES.

## Chapter I.

Dr. Weber has assumed that the authorities are almost unanimously in favor of the doctrine of theoretical depreciation.

In order that it may be made clear to the Commission that such an assumption is without warrant in fact, we have collected a number of decisions of courts and other authorities, which show a direct disagreement with the doctrine advocated by Dr. Weber. We also reproduce here excerpts from a very able paper by Mr. Jacob Goetz, of counsel to this Commission, who shows a keen perception of the state of disagreement of authorities on this problem of depreciation.

Our excerpts are taken from the pamphlet form of Mr. Goetz's paper, as published under the title herewith given. Unfortunately, in the Utilities Magazine, another publication, Mr. Goetz's paper seems to have been severely blue penciled by an advocate of theoretical depreciation. The title of Mr. Goetz's paper is:

## Court Decision on Depreciation.

By Jacob H. Goetz.

Paper by Mr. Jacob H. Goetz, of Counsel, Public Service Commission, First District, New York City, read at a Conference on Valuation, held under the auspices of the Utilities Bureau, at Philadelphia, November, 1915, as published in pamphlet form by Law Publishing Co., of New York. Under the heading, *Diversity of Opinion and its Cause*, Mr. Goetz says:

"The far-reaching and vital importance of the problem of depreciation is presently emphasized by the statement during the valuation hearing before the Interstate Commerce Commission, that a deduction for depreciation from

the value, of the railroads of the country would diminish the value of about three billion dollars.

“Despite the attention which has been increasingly devoted to this problem in recent years, there still exists a contrariety of opinion concerning it, and from the state of difficulty and uncertainty, we naturally turn to the Courts for the finality to be expected in the authoritative-ness of legal interpretation.

“However, the quantity of legal literature extant on the subject is not fairly proportionate to the mass of judicial diffusion among the 8,700 volumes of American Court decisions, the ignorance of which, we are warned, excuses no one. While the decisions already promulgated have helped in delimiting the excursions of legislators, regulators and judges in this field, nevertheless they have also contributed in no small degree to the contention and confusion which usually characterize a fresh attempt to deal with the question. An analysis and comparison of the Court decisions on depreciation hardly disclose that passion for uniformity which a distinguished publicist recently declared, ‘pervades all human nature and has been one of the profoundest causes of the struggles which constitute so great a part of the story of the life of man on earth.’ ”

Mr. Goetz’s Paper, Page 6.

“In *Columbus Railway & Light Co. v. City of Columbus*, decided in 1906, the Special Master, who heard the case held that neither cost new nor cost as worn was necessarily conclusive of the reproduction cost, that the physical value was the service value, and that no deduction should be made except for actually existing, partial or complete, obsolescence or inadequacy. This ruling was, however, modified by the *Knoxville* case, but has, perhaps, been reinstated by a recent *Idaho* case, both of which we shall mention presently. In the *New York Eighty Cent Gas Case*, the Special Master rules against any allowance for hypothetical functional or accrued depreciation beyond deferred maintenance, and allowed only 1.7 per cent of the cost of reproduction. He, too, followed the service-efficiency theory. The Circuit Court sustained the Master’s valuation of the property, and the United States Supreme Court, while reversing the judgment did not refer to this phase, although its opin-

ion had already been expressed in the Knoxville Case which was decided on the same day."

Mr. Goetz's Paper, page 12.

In speaking of the decision of the Court of Appeals in the King's County Lighting Case, Mr. Goetz says:

"Although an appeal was taken to the Court of Appeals upon several points decided by the Appellate Division, the subject of depreciation was not included, but the matter was incidentally referred to by the Court of Appeals, which said:

"The cost of reproduction less accrued depreciation seems to be the one generally employed in rate cases. But it is merely a rule of convenience and must be applied with reason. On the one hand, it should not be so applied as to deprive the corporation of a fair return at all times on the reasonable, proper and necessary *investment made* by it to serve the public, and, on the other hand, it should not be so applied as to give the corporation a return on improvements made at public expense which in no way increase the cost to it of performing that service.'

"Unless by 'investment' the Court of Appeals meant the amount of investment presently surviving, there is a seeming contradiction between approving the depreciation deduction and holding that it should not be applied so as to deprive the corporation of a return 'at all times' on the necessary investment made by it to serve the public.

"The decision upon the issue of depreciation was made by the Appellate Division of the Supreme Court and not by the Court of Appeals, which is the highest court in the State. The Appellate Division, while wholly rejecting the contention that accrued depreciation should not be deducted from the cost to reproduce new, does not commit itself as to the measure of depreciation to govern cases of this kind, that is, whether functional as well as physical causes should be included, although the Commission itself did use depreciation in its largest measure."

In a foot note, at page 12, Mr. Goetz says:

"The N. Y. Public Service Commissions Law, Sec. 72, requires the Commission in determining the price to be



charged for gas and electricity to have 'due regard among other things to a reasonable average return upon capital actually expended and to the necessity of making reservations out of income for surplus and contingencies.' It is obvious that the use of capital actually expended as a basis is not equivalent to the use of reproduction less depreciation."

Mr. Goetz's Paper, page 14.

"The latest 'disturbing factor' upon the subject is the decision in *Murray v. Public Utilities Commission of Idaho*, decided by the Supreme Court of Idaho on July 1, 1915. It has caused widespread comment, because it explicitly holds that only actual tangible depreciation, and not theoretical or accrued depreciation should be deducted.

"Plaintiff petitioned for a review of an order of the Commission fixing rates to be charges by the petitioner, and requiring him to make certain extensions of his plant. The question of depreciation was argued as fully in this case as in the *King's County Lighting Case* in New York, and the same reasoning was employed.

"Upon this subject, the opinion contains only the following, but does not cite any case in support;

" 'This Court is of the opinion that the rule of cost of reproduction less depreciation, adopted by the commission, is the correct general rule or principle to be applied in this class of cases. However, we believe that in ascertaining values in this way the worth of a new plant of equal capacity, efficiency and durability, with proper discount for defects in the old, and the *actual depreciation for use*, should be the measure of value, rather than the cost of exact duplication.

" 'So far as the question of depreciation is concerned, we think deduction should be made only for *actual tangible depreciation*, and not for theoretical depreciation, sometimes called 'accrued depreciation.' In other words, if it be demonstrated that the plant is in good operating condition, and giving as good service as a new plant, then the question of depreciation may be entirely disregarded.'

"This decision is in direct conflict with the *Knoxville Water and King's County Lighting Cases*, but the Idaho

Court may find a few crumbs of comfort in the decision in the Minnesota Rate Cases, if it be assumed that the Court's opinion in that case was deliberate in limiting the depreciation to *actual depreciation* as distinguished from accrued depreciation.

"There were a few other cases since the Knoxville case which referred to the question of depreciation deduction, but, while following the ruling in the Knoxville Case that depreciation should be deducted, they fail to disclose a commitment as to whether the deduction should cover accrued depreciation as well as actual, and also functional depreciation, as well as physical."

Mr. Goetz's Paper, page 16.

"In *Bonbright v. Corp'n. Comm. of Arizona*, in which the Corporation Commission had estimated the value of the various physical units, and then estimated that the plant had depreciated at the rate of 7 per cent per annum, which for an average of seven years would be an average of 49 per cent. of the total depreciation of the whole plant, leaving the present value of the plant only 51 per cent, the Court held this to be 'excessive', but to what extent it did not determine. The Commission seems to have followed the rule of accrued depreciation to its logical extent, and to have ignored the fact that the plant was a composite one, and that the aggregate of depreciation was not constantly increasing. However, if the 49 per cent did represent accrued depreciation, the Court appears to have limited the deduction to complete depreciation as distinguished from 'Accrued depreciation.'

"It, has, frequently been contended by the public utilities in support of their objection to the deduction of depreciation from value that, as the depreciation reserve representing the accrued depreciation of the property was not earning a fair return upon the accumulation, the investors were deprived of a return upon the amount of their investment which is depreciated, but for which provision was made through the depreciation reserve. The point seems to have been ignored in the cases, except in the *Bonbright* case, which holds that depreciation reserve is to be added to the value of the property.

“The Court says:

“This brings us to a peculiar feature of the case. There was on hand in the treasury of the Company at the time of the valuation of the plant the sum of \$64,292.67, accumulation for the purpose of meeting the expense of current repairs and for the replacing of such parts of the property as had been worn out and the life of the part ended. This fund had been withheld from the stockholders that it might be used in preserving the plant in good condition and in proper efficiency. This was good business judgment on the part of the officers of the corporation and must be approved. Public service corporations are to be encouraged in maintaining their plants in a proper state of efficiency. We are of the opinion that the Corporation Commission was in error in its estimate of depreciation of this plant, and particularly was in error in omitting this reserve fund from its valuation of the plant.’

“This in effect means that, if the corporation had collected charges sufficient to provide for depreciation, the reserve should be added to the value of the property. It will be an incentive to charge as high rates as possible in order to accumulate as large a depreciation fund as possible, thereby increasing the value of the property.”

Mr. Goetz’s Paper, page 20.

“Yet the real distinction between the classes of charges is not apprehended by the Court, for in the same year, in a case between the same parties, involving the question of net earnings, in the case of *United States v. Kansas Pacific Railway Company*, the Court referred to the ‘principles announced’ in the earlier decision, rejects an allowance for depreciation not actually expended, saying:

“‘Depreciation account, or expense not charged up.’ This is explained to be the amount necessary to put the road in proper repair, but which was not actually expended for that purpose. We are clearly of opinion that it is not a proper charge. Only such expenditures that are actually made can with any propriety be claimed as a deduction from earnings.’ ”

Mr. Goetz’s Paper, pages 26, 27, 28.

“It was not until the decision was rendered by the United States Supreme Court in the *City of Knoxville v. Knoxville*



Water Company, upon an appeal involving the validity of water rates fixed by the municipality, that all doubts upon the rights of the utility to have allowance made out of revenues for depreciation before arriving at the return to which a public utility is entitled, were resolved. In that case, upon the phase of depreciation, Judge Moody said:

“ ‘Before coming to the question of profit at all, the Company is entitled to earn a sufficient sum annually to provide not only for current repairs but for making good the *depreciating and replacing* the parts of the property when they come to the end of *their life*. The Company is not bound to see its property gradually waste, without making provision out of earnings for its *replacement*. It is entitled to see that *from earnings the value of the property invested is kept unimpaired*, so that at the end of any given term of years the original investment remains as it was at the beginning. It is not only the right of the company to make such provisions, but it is its duty to its bond and stockholders, and in case of a public service corporation at least, its plain duty to the public. If a different course were pursued the only method of providing for replacement of property which has ceased to be useful would be the investment of new capital and the issue of new bonds or stocks. This course would lead to a constantly increasing variance between present value and the bond and stock capitalization—a tendency which would inevitably lead to disaster either to the stockholders or to the public, or both. If, however, a company fails to perform this plain duty and to exact sufficient returns to keep the investment unimpaired, whether this is the result of unwarranted dividends upon over-issues of securities, or of omission to exact proper prices for the output, the fault is its own. When, therefore, a public regulation of its prices comes under question the true value of the property then employed for the purpose of earning a return cannot be enhanced by a consideration of the errors in management which have been committed in the past.’

“ ‘The decision, while emphatically holding that a *depreciation allowance* should be made, is ambiguous upon the question whether the allowance should cover functional as well as physical depreciation. It speaks, however, of ‘depreciation and replacement,’ and of keeping unimpaired the value

of the property invested in the sense, perhaps, that replacement covers functional depreciation, and that preservation from impairment requires provision against the day when through the growth of requirements or the development of art some property ceases to be useful as a part of the investment. *But to assert that the Court held that an allowance for functional depreciation should be made would be only argumentative.* The case is, however, clear upon the rule that the depreciation allowance should be sufficient to cover accrued depreciation and not alone actual depreciation.

Mr. Goetz's Paper, pages 26, 27, 28.

"In this regard, the inclusion of functional depreciation in the depreciation allowance for depreciation contrasts sharply with the deduction for depreciation from reproduction cost. In reference to the latter, there is not yet the preponderance of opinion that functional depreciation should be allowed, and, as we have observed in the recent Idaho case, the Court would not permit a deduction for accrued physical depreciation; whereas in reference to depreciation allowance, provision is permitted for not only accrued depreciation but for functional as well as physical depreciation.

"Soon after the Knoxville decision, the Iowa Supreme Court, in the rate case of Cedar Rapids Gas Light Company v. Cedar Rapids, said:

" 'There can be no doubt as to the justice of some allowance for depreciation. A public service corporation is under no obligation to sacrifice its property for the public good. Nor is it bound to see its property gradually wasted by *wear and decay* without making provision for its replacement. It is entitled to earn enough not only to meet the expenses of current repairs, but also to provide means for replacing the parts of the plant when these can no longer be used.'

"The Court, however, limited the allowance to physical depreciation and refused to make an allowance for functional depreciation, saying:

Mr. Goetz's Paper, page 29.

" 'Some stress is put upon the responsibility of enlargement and of the necessity of replacing parts with others ad-

equate to meet *increased demands*, but there is no reason to think that the income will not keep pace with the extensions or enlargements. In other words, profits on the additional sales of gas will, in all probability, yield an adequate income on the amounts expended for the expansion of the plant. Should replacement of some of the machinery now in use prove necessary because of new inventions, this in all probability will be owing to the economy which may be effected thereby in production, and, again the saving may be expected to yield a fair return for the new investment. Moreover, the rate fixed by this ordinance is not necessarily perpetual, but subject to such changes by the governing board of the city as shall be essential to meet the contingencies of the future.' "

Mr. Goetz's Paper, page 30.

"In *Home Telephone Company v. City of Carthage*, it appeared that until two years before the trial no depreciation fund had been provided and even at the time of the trial no item of expense had ever been charged to that fund. Nevertheless, the company urged that before any return upon the investment should be considered, a depreciation fund to cover what was termed 'invisible rot,' must be taken from the earnings of the plant. The Court held that 'A liberal sum should always be reserved from the earnings, whatever such fund may be designated, in order to keep the plant in a high *degree of efficiency* at all times and to provide for *emergencies*.' It is difficult to tell from this language whether the Court included in the allowance a provision for obsolescence and inadequacy. The use of the term 'emergencies' could hardly have been made with reference to depreciation in any aspect.

"In the same year the Appellate Court in Washington, in the rate case of *Puget Sound Electric Company v. Railroad Commission of Washington*, held that provision should be made by the railway company out of its earnings to keep the 'usefulness' of its property '*unimpaired*', and that the company can properly charge an annual sum to care for 'necessary depreciation and waste.'"

Mr. Goetz's Paper, pages 33, 34.

"A conflict with this decision seems, however, to have been raised by *Bonbright v. Corporation Commission of Ari-*



zona, in which the Court held that depreciation reserve should be deducted from depreciation by which the reproduction cost of the property is to be diminished. This is equivalent to saying that, in determining the value of the property, one should first add the depreciation reserve to the value of the property or capital account, and deduct therefrom accrued depreciation, whereas the United States Supreme Court holds in the Cumberland Telephone Case that such a method is improper.

“In *Louisville & Nashville R. R. Co. v. Railroad Commission of Alabama*, the Special Master rejects the contention by the Railroad Commission that in determining current income, interest should be allowed on the balance in the replacement account, saying:

“ ‘The capital of a railroad bears no interest—it is employed and used by the management for the net earnings of operation after paying all expenses, including taxes and depreciation reserves or charges. As the use is made or enjoyed of capital, the value is currently lost or expended by visible and invisible or latent depreciation, and, by the law of proper adjustment, operating expenses are currently taxed for the estimated per cent to cover depreciation, which is passed to credit of replacement account, and there stands a liability of the management until balanced off through renewal account. \* \* \* \* \*

“ ‘But, however, that may be, the management is entitled to the whole capital at 100 per cent of value without interest and the (apparent) replacement balances at any moment stand precisely as a part of the capital—that is, as value expended by use and replaced by depreciation assessment in transit for renewal investment.’ ”

Mr. Goetz’s Paper, page 35.

“The purposes of depreciation deduction and depreciation allowance are different, for in the case of deduction from reproduction value it has been used for determining the amount of property within the constitutional guarantee, while in the case of depreciation allowance out of earnings it has been used for assuring the conservation of the investors’ capital and the maintenance of the plant’s operating continuity and efficiency. It may be that, viewing the problem without regard to the constitutional guarantee, but

from the standpoint of equitable consideration, it should not be necessary to include functional depreciation in order to reach a fair basis of return. In that connection, other factors would have to be considered."

Mr. Goetz's Paper, page 42.

"In the latter part of September, 1914, the New York Railways Company made an application for a change in the depreciation order so as to permit the reserve to be made up by contributions of 20 per cent of the gross passenger revenue instead of the gross operating revenue, but on July 27, 1915, the Commission denied this application.

" 'In estimating for the annual allowance for maintenance, there should be a separation of annual repairs from expenditures incurred for *replacements to prevent depreciation*. The distinction between ordinary repairs and repairs made in ordinary reconstruction of the plant, may not be accurately drawn, but absolute accuracy is not required in such details.' "

Mr. Goetz's Paper, page 17.

" 'To summarize, it may be stated that the Court decisions upon the subject have definitely held that, to test the value of a plant by cost of reproduction depreciation must be deducted for wear and tear; that the Knoxville Case and the King's County Case included in the depreciation both complete and incomplete depreciation, whereas the Minnesota Case referred only to actual depreciation, and the Idaho case permitted a deduction only for actual depreciation, and that the Des Moines Case included in the deduction also functional depreciation, as did impliedly the Kings County Lighting Case. *It may fairly be said that there is no leading case expressly holding that functional depreciation should be included in addition to physical depreciation.*

## Chapter II.

Under this chapter we give a number of excerpts from various courts and commissions supporting the views set forth in the preceding portion of this paper. We do not however wish to argue that precedent or rulings on such a problem as we are considering should be of deciding weight. Any one of proper mental caliber for the work who makes a study of the decisions, opinions and sayings of courts and commissions will be appalled at the confusion of views expressed and the opposing conclusions arrived at even within the same opinion or decision. Yet these things are written by men often of the highest grade of intelligence which the country can produce. The trouble is not in the quality of the men but in the quality of the work and thought which they have been willing to give the subject.

It is probable that few of them realize the importance of the problem which, it has been calculated, involves not millions, but billions of dollars in the adjudication of the vast valuation work now only beginning in this country. It is a problem worthy the deepest study of all commissioners and while we give here some of the precedents supporting our views, we ask of the commission an interest in the problem separate from precedent—and contemplating individual thought and investigation.

## MONTANA PUBLIC SERVICE COMMISSION

(6th. Mont. p. 195)

In the case of the Helena Light and Railroad Company, (6th. Montana, P. 195) The Commission does not favor depreciation of the reproduction cost for rate-making purposes.

At the bottom of page 195 the Commission says:

“Whether or not the valuation thus obtained is subject to depreciation, and if so, to what extent, is a matter of expert opinion, depending upon the amount expended for maintenance, renewals and permanent improvement work; the period during which such amounts were expended, and in general, the ‘state of repairs’ of property. It will be obvious that there can be no fixed percentage of depreciation applicable to a utility that had been ‘kept up’ from year to year by constant effort, and the purchase of improved devices, as compared with one that had been al-



lowed to deteriorate through neglect hence the principle of an arbitrarily established measure of depreciation is untenable.

“Assuming that rates were being made for a new plant, it would be the total capital that must be considered as entitled to bear interest, as there would be no accrued depreciation. Depreciation is a liability against the property which must be accounted for, but in making allowance for future depreciation, it is not the intention to provide for accrued depreciation, which is assumed has been taken care of. To simplify the matter, let us assume that an investment is made in 1903 of \$100,000 under a twenty year franchise, rate of interest allowable 10% per annum, and figure 5% per annum depreciation. At the end of ten years, or in 1913, the property will have depreciated \$50,000, and has a remaining value of like amount. Then, if rates are made, based on the depreciated value, they must be one-half of the original rates although the service may be just as efficient as it ever was, and in ten years more the physical value of the plant would be nil, and likewise, upon the same basis of reasoning, the utility would not be permitted to charge anything.”

#### CALIFORNIA RAILROAD COMMISSION

July 6, 1914

5 C. R. C. R. 19.

In the case of the town of Antioch vs. The Pacific Gas and Electric Co. July 6, 1914, (5 C. R. C. R., page 19), the commission comes out plainly in opposition to considering the depreciated reproduction cost as fair value, for rate making purposes. The Commission says:

“It is unfair to base a return entirely upon a depreciated reproduction value, such depreciation being computed from the average age of the component parts of the system, which though in use for several years, are still equal to 100 per cent efficiency.”

“Held, That though the Commission is not committed to any one theory in determining the fair value of a utility for rate-fixing purposes, and will consider all the elements suggested by the Supreme Court of the United States giving to each element its fair weight, considerable weight will be

given to the money honestly and wisely invested in the property and in building up the business.”

At Page 31 Commissioner Thelan says:

“While I find myself unable to agree with defendant’s argument with reference to the estimated reproduction cost new theory I find that there is much merit in the defendant’s attack upon the basis resulting from the subtraction from the estimate of reproduction new of the theoretical depreciation based upon mortality tables. Engineers frequently ascertain what they call a ‘per cent value’ by subtracting from the estimated reproduction cost new, an item for theoretical depreciation, which is ascertained by multiplying the average age of each class of material by the theoretical depreciation from so-called mortality tables. The basis so secured may be just as unfair to the utility as the basis of reproduction value new may be to the consumer. Thus, a public utility plant may have originally cost \$10,000.00. The money may have been invested honestly and with a fair degree of wisdom. At the end of three years the plant may be giving 100 per cent service. The component parts have been correlated and the system is in first class working order. While the component parts may not be intrinsically as sound as when they were new, it would be a foolish waste of money to renew them, for the reason that they are doing their work and that they are giving 100 per cent service, without any danger of wearing out in the near future. Under these circumstances, an engineer applying mortality tables and estimating the theoretical depreciation at 5 per cent per year, reaches the conclusion that the present value of the plant is only 85 per cent of the original investment, being the sum of \$8,500.00. The Commission is accordingly urged to grant a return based on an estimated present value of \$8,500.00. If this return is allowed at the rate of 8 per cent, an allowance of \$680.00 will be made for interest. The utility, however, has in good faith paid out of its pockets for capital account the sum of \$10,000.00, and is giving 100 per cent service to the public. What is to become of the remaining \$1,500.00 which the company has honestly invested? If a man loans \$10,000.00 on a first mortgage, he expects interest on the entire sum which he loans and expects ultimately to get back his entire principal. Why should this same man, if he invests

\$10,000.00 in a public utility enterprise and keeps up his property in first-class condition, so that he is rendering 100 per cent service, be refused a return on the difference between his investment and a theoretical depreciated reproduction value? It may be urged that justice may be done by placing the remaining \$1,500.00 in a depreciation fund, which fund may be invested and bear interest. As I shall hereafter show, however, under the provisions of section 49 of the Public Utility Act the income from investment of moneys in depreciation funds of public utilities in this state must be carried in these funds and can not be used for the payment of interest on investment or operating expenses. The injustice of applying such theory becomes more apparent as the age of materials and structures, increases. If the theory is carried to its logical conclusion and the engineer makes no allowance for replacements, but confines himself strictly to the age of the structures and his mortality tables, there will come a time when the value of the property will have been depreciated to zero, so that no return whatsoever would be allowed. While this may be a fanciful case, it is of value in testing the accuracy of the theory. It seems strange that the public utilities in protesting against this theory, frequently do not seem to realize that the real reason for their protest is that the application of this theory deprives them of a return on a portion of the money which they have invested. It must also be remembered that the ascertainment of the physical condition per cent of a property is one thing and that the ascertainment of a proper basis on which to give a return may be an entirely different thing. The engineer frequently forgets this distinction, and erroneously believes that his work is the same as that of the rate-fixing authority. It must be apparent, however, that it may well happen that a utility under certain circumstances is not entitled to a return on the amount of money invested, and that in such case certain deductions must be made for actual depreciation. For instance, if the utility does not set aside in a depreciation fund a sufficient portion of its income to cover the necessary replacements from time to time, to replace portions of the plant which can no longer be used, either because they have come to the end of their natural life or because of obsolescence or inadequacy, and if the moneys which should be set aside in such fund are



diverted to the stockholders in shape of dividends, such diversion is practically equivalent to a payment of dividends, out of capital. As the investment has thus been reduced, there must be a corresponding reduction in the basis of return. Stockholders must not entertain the delusion that they can take out all the earnings in the shape of dividends and still claim a return on the basis of the original investment.

“A realization of the injustice which frequently follows from the application of the theory of reproduction cost new less depreciation based on mortality tables, is inducing rate fixing authorities to pay more attention to the actual depreciation as shown by an inspection of the plant and to the question whether the necessary renewals and replacements are being made so as to keep the service for the present and for a reasonable time in the future up to a standard of 100 per cent.”

\* \* \* \* \*

“While I have thus analyzed and commented upon some of the more important theories which are at times presented to this Commission as proper basis for ascertaining the ‘fair value’ of public utility properties for rate-making purposes, I desire to have it distinctly understood that this Commission does not commit itself to any one of these theories to be uniformly applied in any class of cases. This Commission will continue, as it has done in the past, relying on the words of Mr. Justice Harlan in *Smythe vs. Ames*—to consider all the elements which enter into the problem in any given case, and to give to each the weight to which the Commission in equity and justice believes it to be entitled on the facts of any given case. In reaching its conclusion however, the Commission will continue to give great weight, when the facts can be ascertained to the amount of money which the utility has invested honestly, and with a reasonable degree of foresight.”

# WASHINGTON PUBLIC SERVICE COMMISSION.

Washington Public Service Commission vs. Pacific Telegraph Telephone Company.

Washington P. S. C., April 25, 1916.

(P. U. R. 1916 D #4, p. 947 & R. R. Vol. 9 p. 249.)

The Washington Public Service Commission rejects reproduction cost as basis for rate making and uses "actual performance" as base. Chairman Reynolds of the Commission says:

"1. The engineers of the Commission followed the usual cost of reproduction method of appraisal. The report covers all of the requirements of our statute (Session Laws of Washington, 1911, chap. 117, p. 92). The Commission will follow the statute and make findings as required therein. No one of the factors found under the cost of reproduction method represents the amount to be used as 'fair value' or 'rate base.' The statute is silent upon the question of the finding of 'fair value' or a base for rates. The Commission is directed to find the 'market value,' but no one contends that the 'market value' is always a fair basis for rates. Since the Commission is required to ascertain the fair, just, reasonable, and sufficient rates for telephone service, the Commission will assume that it is authorized to find a 'rate base.'

"2. The respondent company, while producing figures on some of the matters required to be considered by our statute, has vigorously attacked the cost of reproduction method of valuation, and has suggested an 'actual performance' method, which, where practicable, seems to present many strong reasons for its adoption. The cost of reproduction method has not proven entirely satisfactory to courts and commissions." \* \* \* \*

"Cost of reproduction 'new' may or may not represent the amount which the utility necessarily expended, the detriment they necessarily suffered to bring the plant up to its present status. Telephone plants are not constructed upon the cost of reproduction theory, but extension is added to extension, and piece by piece the whole system is brought to a point where it can efficiently and adequately serve the public.

\* \* \* \* \*

“Our attention is called to the fact that value is a resultant, not a premise. Value is defined by Webster to be the ‘property, or aggregate properties of a thing, by which it is rendered useful or desirable.’ A utility is rendered useful or desirable to the owners thereof by reason of the return it will bring to its owners in the way of net profits. If we take this definition of the term ‘value’ and make such value the basis for rate-making each time we increase the return we increase the desirableness of the property or properties, and on the other hand if we decrease the return, we decrease that which makes the thing desirable; and so if we decrease the return we decrease the value, and if we increase the return, we increase the value. Value is a shifting, variable thing depending upon many factors,—the money markets, shifting population demands, competition, politics, weather conditions, taxes,—the varied opinions of men, and the rates themselves, all have to do with the rise and fall of values. To say that rates are to be based upon the value of the property, using the term in its usual and ordinary sense, is to say that rates shall be based upon one premise today, another tomorrow. So we must conclude that when the courts said that rates were to be based upon ‘fair value,’ they could not have meant to use the word ‘value’ in the sense in which the word is ordinarily used and understood.

\* \* \* \* \*

“We, therefore, adopt and approve the plan suggested by respondent, that rates are to be based upon facts, rather than theories; that ‘fair value’, if the words are to be used in the usual and ordinary sense, cannot be the basis for rates; that a utility is entitled to a reasonable compensation based upon the reasonable and necessary detriment suffered in preparation for and in the service of its patrons, and not upon values created by the public.”



## INDIANA PUBLIC SERVICE COMMISSION.

The Commercial Club of Terre Haute v. The Terre Haute  
Water Works Company.

P. U. R. 1916 B 180.

December 17, 1915.

The Indiana Public Service Commission seems to favor *Investment* as a factor to be considered in "Fair Value" in the case of the Commercial Club of Terre Haute et al. v. The Terre Haute Water Works Company—Decision December 17, 1915. (R. R. Vol. 8, p. 201.) The Commission found the total value of the property to be \$1,259,845, reproduction cost new, and \$1,106,335, reproduction cost less depreciation. The Commission says:

"While the actual investment in this property can never be ascertained with certainty, we can approximate it. From the evidence it is reasonably certain that there has been invested in original construction in this property not less than \$1,200,000.

"Counsel for the complainants have fallen into a common error in assuming that the cost of reproduction of the property less depreciation is the actual value of the property for rate-making purposes. This is not true. It may be the present value and it may not be. When we have ascertained the cost of reproduction less depreciation, we have done nothing more than establish one important item of evidence to be considered by the Commission in determining the fair and reasonable value of the property."

\* \* \* \* \*

"After giving due consideration to the cost of reproduction of this property less depreciation and to the actual investment therein, and to the amount and value of the stocks and bonds, and to all other evidence in this case pertinent to this issue, we find that the fair and reasonable value of the property of The Terre Haute Water Company that is used and useful for the convenience of the public in the transaction of its business is \$1,200,000. In this we have included a going value of \$80,000.

## MAINE PUBLIC SERVICE COMMISSION.

Application of Moosehead Tel. &amp; Tel. Co. et al.

(C. L. 43, Page 400.)

“A competent engineer, who testified before the Commission went carefully over the physical properties of the three companies which are to be united by sale of such properties to the Moosehead Telephone and Telegraph Company. He prepared and presented to the Commission in written form, a detailed report of all the physical property to be purchased and sold, with a value based upon each unit of such property and an estimate of the present entire value of the aggregate of the properties of the companies whose franchises and properties are to be purchased. These estimates and values have been carefully gone over by the Commission, and they seem to be fair. In arriving at the value of the physical properties, the engineer determined first the reproduction cost of the various units of such properties, and used the result so obtained as one of the elements for determination of the present value of such properties. In the case of the New England Telephone and Telegraph Company its plant and properties had been kept up to date so that the element of obsolescence and inadequacy did not materially decrease the present value below the reproduction cost. In the cases of the Northern Maine Telephone and Telegraph Company and the Moosehead Telephone Company obsolescence and inadequacy reduced the reproduction cost about 18 per cent, and this was necessary on account of the manner in which the lines of each of these companies were originally built, the failure to make necessary repair and the failure of each company to keep its plant and equipment up to date, resulting in necessity of expending a considerable amount of new money in bringing each of these plants to a condition where proper service could be given.”

## MASSACHUSETTS PUBLIC SERVICE COMMISSION.

Middlesex and Boston Rate Case, Oct. 28, 1914.

(36 Commission Leaflets 398 R. R. Vol. 6, p. 138.)

In the Middlesex and Boston Rate Case, Oct. 28, 1914, (R. R. Vol. 6, p. 138) the Massachusetts Commission very definitely opposes taking Reproduction Cost Less Depreciation as

Fair Value, but favors taking "capital honestly and prudently invested" for rate making. In speaking of the Reproduction Theory the Commission says:

"On the other hand, this theory is grossly unjust to prospective investors, in that even when the investment is made with entire honesty and with reasonable prudence,—yet if, pending the building up to the new business, the plant depreciates below the fair cost to the investors, rates must, under this theory be made adequate to make return only upon the reproduction cost of the property in its depreciated condition. This amounts to saying that money lost during the earlier stages of the public service enterprise is irretrievably lost by the stockholders; that if, perchance, rates have been fixed so low that the rate-payer has for a period of years obtained a service at less than cost, this is the permanent misfortune of the stockholders—and that the public should never at any time under any circumstances be called upon to make up a deficit thus incurred. On this theory copper put into the telephone service at 25 cts. a lb. is now to be reckoned as worth about half that sum. Every fluctuation in prices involved the ascertainment of a new rate basis". \* \* \* \* "This theory is as inexpedient as it is unjust. It should never be forgotten that our public utility companies are not finished. They are in process; they are constantly calling for new capital, and of recent years in increasing amounts. They must be kept on good trading terms with the investing public, or the whole experiment of private ownership and public regulation of these public utility companies will fail. It is as necessary to attract capital into the public service as it is to prevent the mismanagement of the companies, or extortion by them.

"If regulation is to limit (as it should) the profits of stockholders to a moderate return, not greatly in excess of an investment rate, regulation must also protect, so far as it reasonably may, all investments honestly and prudently made and properly managed in the public service; otherwise there will be no such investments. It is entirely clear that in the long run the rate-paying public, as well as the investing public, will be best served, if regulation makes its *fundamentally guiding principle* an attempt to protect investments honestly and wisely managed. Any other theory involves essential injustice, tends to make the development



of our public utility companies, a speculation and not an investment, operates as a premium upon various kinds of fraud; invites into public service undesirable manipulators instead of sound, level-headed business managers, makes every rate case an almost interminable and labyrinthine inquiry into values, with endless conflicts between so-called experts.

“What the public interest of this commonwealth obviously needs is such regulation and such management of our public utilities, that the rate-payers may always feel assured that their rates are based upon making a fair and adequate return upon the capital which has been invested for their convenience and benefit; that purchasers of the securities may know that within the limits of sound management and reasonable and just regulation, their investments are secure; a system in which a premium is put upon good management; and discouraging condemnation is visited upon bad management; a system which is simple and capable of economical and efficient administration.

“These principles are nothing new in the theory of Massachusetts regulation. Partly owing to the limited scope of rate making power possessed by the Railroad Commission, there has hitherto been little occasion to deal in detail with the principle that investment and not reproduction cost is in Massachusetts the basis of the relation between the rate-paying public and the investing public; but any other theory will be found, upon an examination of our statutes and of earlier decisions, to be utterly inconsistent with Massachusetts law.” \* \* \* \*

“All through the statute law and the earlier decisions of this board, runs the theory that the capitalization of a public utility company in this commonwealth is to represent only honest investments; and that such rates are to be allowed as will yield a fair return upon such investments including, particularly in the earlier legislation, fair or even generous payments for the risks that the investment ran.

“In this fairly consistent adherence to sound principle, our Massachusetts public utility code is in striking contrast with the loose and haphazard legislation in many other states, which has frequently resulted in compelling their regulating commissions to resort to reproduction cost as perhaps the least unsafe basis for determining fair rate.

“Accordingly we rule that under Massachusetts law capital honestly and prudently invested must, under normal conditions, be taken as the controlling factor in fixing the basis for computing fair and reasonable rates; that if there is mismanagement causing loss, such loss must be charged against the stockholders legally responsible for the mismanagement; that reproduction cost, either with or without depreciation, is not, under our law, to be taken as the determining basis for reckoning rates.”

Note: Above also found in 2 M. P. S. C. p. 105.

At page 99 of the (2 M. P. S. C. R.) the commission says:

“Under Massachusetts law the honest and reasonably prudent investment, represented under normal conditions by the capitalization, must be taken as the basis of reckoning fair and reasonable rates. Reproduction cost may be considered, but it is not to be taken as the determining basis.”

#### MASSACHUSETTS BOARD OF GAS & ELECTRIC LIGHT COMMISSIONERS.

Haverhill Gas Light Co. Case.

(28 Annual Report Board of G. & E. L. Com.)

(Dec. 31, 1912, Page 53.)

The Board of Gas and Electric Light Commissioners' view on depreciation is somewhat expressed in the case of The Haverhill Gas Light Co., Dec. 31, 1912. (28 Annual Report, Board of Gas & Elec. Lt. Commissioners, page 53.) It says:

“The consideration of depreciation raises some of the most subtle and complex questions incident to rate making, and, while it has been extensively discussed and numerous theories advanced, the Board is not aware that any satisfactory rule for its determination applicable to companies generally has been laid down. The problems which it involves are necessarily individual to every company, although affected by general considerations. It has an important relation to the physical condition and value of the property which is entitled to a return, and to the provisions in future earnings when fixing a reasonable price. Assuming the property provided by the stockholders has been kept in good condition, any future depreciation allowance is the measure of those demands which intelligent manage-

ment and a wise foresight find necessary for maintaining that property at its *normal efficiency*. Anything less than this will tend to injure the stockholders; anything more may unjustly burden consumers. In the ordinary conduct of a company, to correctly deal with this subject requires of the manager a complete familiarity with all its property, its condition and its relation to the prospective demands of the community, an adequate knowledge of and receptive interest in the progress of the art and exercise of his best ability in all these directions. The problem is primarily for the manager rather than with the engineer or accountant, although both of these may contribute their aid. All parts of a plant, excepting land, suffer constant depreciation, though it may be imperceptible to the untrained observer. *Provision for depreciation is only designed to keep a plant good.* It is as necessary a part of the cost of carrying on the business as the expenses for coal or wages. Although it was this item upon which the parties were most nearly in accord the Board hesitates to fully accept their view. In view of the constantly changing ratio of output to plant value, it is difficult to adopt any rule which fixes a certain definite amount per thousand feet for a proper depreciation charge, which may be applied to all companies or to the same company at all times. Moreover, the amount of this charge may be materially affected by the degree of liberality with which repair accounts are treated."

#### MARYLAND PUBLIC SERVICE COMMISSION.

David Bachrach, et al., & Mayor of Baltimore City, James H. Preston,

vs.

Consolidated Gas, Electric Light and Power Co. of the City of Baltimore.

Cases Nos. 175, 176, 177.

Decided Jan. 13, 1913.

(Md. P. S. C. R. for 1913. Page 51, 14 Commission Leaflets 154.)

On page 51 of the Maryland Public Service Commission's Report for the year 1913, in the opinion by the Commission it reads as follows:



“Ford, Bacon & Davis do not deduct anything for depreciation, for the reason that, in their judgment, the adjustment of the property, the elimination of ‘any elements of accident that exist in the first aggregation of an apparatus that goes to make up a plant,’ and the excellent maintenance of the Company’s plant, offset the actual depreciation that may have accrued. We think there is something in this view, but there is nothing in the case from which we can estimate the appreciated value as an offset to depreciation, except the opinion of Mr. Uebelacker and Mr. Wagner. There is no doubt that the property is well maintained and thoroughly efficient, which indicates that the actual depreciation is not as great as the life tables, which are largely made up of averages, may figure out.”

#### WISCONSIN RAILROAD COMMISSION.

Hill et al. vs. Antigo Water Company.

(3 W. R. C. R. 640.)

Just what view the Wisconsin Commission takes on the question of Depreciation is not definitely shown by the decisions. In most cases the Commission uses Reproduction New Less Depreciation as a factor in arriving at a fair value, but as to whether this is the controlling factor is not shown. The fair value used by the Commission after making additions for Intangibles is usually very close to the cost of reproduction new. That both the cost of reproduction—less Depreciation and Reproduction new are considered as factors are shown in the following cases. In the case of Hill et al. v. Antigo Water Co. (3-W. R. C. R. p. 640) the Commission says:

“It is not easy to get away from the fact that investors are ordinarily entitled to reasonable return on the amounts that have been reasonably, legitimately, and honestly invested in public utilities. Where this holds good then it also follows that the valuation that should be adopted for rate-making purposes is a valuation that is represented by such investment.” \* \* \* \* \*

In the case of the City of Whitewater v. Whitewater Electric Light and Power Co. (6 W. R. C. R. page 138) the Commission says:

“As it is a general rule that the reasonable return which a utility is allowed to earn covers interest and depreciation on the actual investment in the plant, it becomes important to know what the investment in the plant actually is, that is, what is the value of the plant new. The fact that the property of the utility has diminished in value with use, as the inevitable result of depreciation, does not lessen the amount of investment in the plant for rate-making purpose.”

Thus far in this opinion the commission would seem to lean to the Reproduction-new, or money invested as the Fair Value. Attention is called to page 366 of Whitten's Valuation of Public Service Corporations where the Wisconsin Commission is quoted in addition to the section just given as saying:

“To be sure, it may happen in the case of a given utility that money which should have gone to the establishment of a depreciation fund has been diverted to the stockholders, thereby apparently lessening their investment. If an amount equal to the difference between the value of the plant new and the value in present condition is thus paid over to stockholders, it would appear, at first sight, that the value of the plant in present condition would be the basis on which interest returns should be allowed. But it must not be forgotten that at the expiration of the life of the plant if the money which should have been used to provide for depreciation has been paid to stockholders in the form of dividends or otherwise, the value of the plant will be nothing. Then instead of the utility having a depreciation fund on which to draw to replace the plant, the owners will find it necessary to pay the cost of replacement, presumably from the money which they have received from the plant, but which should have been used to provide a depreciation fund.

“The investment in the plant, then, must, in general, be taken as the cost of the plant new, since although the investment may apparently be diminished by failure to provide for depreciation and by payment of this money to owners or stockholders, in reality the investment is not diminished, because of the necessity of replacing the plant, in the absence of a depreciation fund, from the property of owners or stockholders.

“Therefore, it appears that the question of valuation, which is of most importance in this case, is that of cost of the plant new, or the actual value of the total investment in the plant.”

This would very clearly show the Commission in favor of the Original cost, not diminished by depreciation as the fair value. But the case as finally reported in (Vol. 6 W. R. C. R. P. 138) differs materially. We understand the text of the report was changed from the first draft printed, to the text as printed in the final report.

#### IDAHO PUBLIC UTILITIES COMMISSION.

In Re. Application of James A. Murray.

(Pocatello Case)

30 Commission Leaflets, 1347, 1406.

Commissioner Ramstedt dissented from the opinion of the Commission in regard to the question of depreciation.

In the above case (1st. Idaho P. U. C. R. at page 32) the report says:

“Commissioner Ramstedt, although concurring in the establishment of the rate schedule prescribed by the Commission, was unable to agree to the findings of the majority as to the fair value of the property and as the primary basis to be adopted in determining such value.”

At page 70 Commissioner Ramstedt says:

“Physical depreciation resulting from use, decay and the action of the elements, is a constant factor, commencing simultaneously with construction and ending with replacement. A person having invested his money in a continuous business enterprise for the benefit of others, as in the case of the petitioner herein, and in so doing, having subjected his property to the control of the State, from which control it cannot be withdrawn, must always be ready and able to meet the public demand, and to replace the constructive portions of his plant from time to time as they wear out and decay. A person having embarked in such an enterprise is justly entitled to compensation to cover this depreciation in addition to a fair return, over and above ex-



penses, upon the reasonable value of the property which he has employed for public use for the same reason that a laborer using his tools is entitled to wages which will not only compensate him for his services but enable him to replace his tools as they wear out. Allowance for depreciation cannot, in my judgment, be considered as profit or an earning factor in the business. The expenditure necessary to make replacements at any time may exceed the amount received up to that time to cover the cost of such replacements, on the other hand the cost of making replacements at a certain time may be very much less than the amount received up to that time to cover depreciation. The theory of allowance to cover depreciation must be that in the long run the owner will be reimbursed for the money which he must spend in making replacements which in the very nature of the business he must make from time to time. The fact that the amount he has received from the public at any time is either greater or less than the amount which he has expended for replacements, if the allowance for depreciation is correctly computed, does not affect the returns to which he is justly entitled on his original investment. He is entitled to a fair return on his investment and to hold the undepreciated property, or its equivalent in value, which he has employed for public use.

“The fact is, that an investigation of the petitioner’s property, undertaken at this particular time for the purpose of fixing rates, it is found that the market value of his physical property employed for public use has depreciated \$77,188.39, does not, in my judgment, justify the Commission in its determination of a fair value for rate purposes, to deduct the amount of depreciation from the present estimated cost of reproducing the property new, and thereby reduce the earning power of his property. The petitioner has undoubtedly, in the past twenty years, made such replacements from time to time, as the public service demanded, and must at all times be prepared to make such replacements as the public service justly demands. The depreciation which we now find in the physical value of the property is somewhat in the nature of an incumbrance which must be taken care of sooner or later and without increase in rates by reason thereof; in fact, a large portion of the improvements, which, under the order of the Commission,

he is required to make within the year, is really replacement, and I cannot see how we can justly decrease the earning power of his property by decreasing the investment on which he may earn a fair return. Whenever the time comes when any great amount of replacement is necessary, and that may be at any time, he may be required to expend all that he has ever received to cover depreciation and a good portion of his earnings."

# MAINE PUBLIC UTILITIES COMMISSION.

March 28, 1916.

P. U. R. 1916 D. 25.

In the case of E. O. Butler et al. vs. Lewiston, Augusta and Waterville Street Railway (March 28, 1916) (P. U. R.—1916D page 25) the Maine Commission holds the cost is the base on which the return should be figured and that the cost should not be depreciated if the property is properly maintained. (At page 45) the Commission says:

"Passing over this claim of the company for a moment, let us see if there is any necessity for or justice in decreasing the original cost value, \$199,781.50, by any amount whatever for actual or theoretical depreciation. *Depreciation is deferred maintenance*, and in a case where any public utility had permitted its plant or any substantial portion thereof to become insufficient or inadequate on account of failure to properly maintain the same, such condition would be actual depreciation, and should be properly noticed by decreasing the original cost of the property by such an amount as it had actually depreciated. This would be just and fair because the company is taking from the public in the form of rates, tolls, or charges certain money, and distributing it to its stockholders in the form of dividends, when a certain portion of such amount should be laid out upon the property in keeping it up to as near 100 per cent efficiency as possible. If, on the other hand, a public utility company is spending a sufficient amount each year to properly maintain all of its property, and as a result thereof its plant is rendering nearly 100 per cent service, it would be unfair to deduct any considerable amount for depreciation, for the reason that the company would thereafter receive its re-

turn upon this reduced value, and, being obliged to charge and receive no more, than reasonable rates upon fair value, would never be able to obtain a sufficient amount to place and maintain its particular property in proper and efficient condition.”

\* \* \* \* \*

“And while the Commission wishes to assure the great army of patrons of public utilities in this state that it will be vigilant in securing for them adequate service at reasonable rates, it is equally desirous of making it plain that capital invested in construction, development, and extension, and especially in planting them in sections not now served, will receive consideration sufficiently favorable to make it an object to come here. When we lose sight of this duty, we become an instrument to kill enterprise, not to regulate it.”

#### OKLAHOMA CORPORATION COMMISSION.

J. W. Bolen vs. Pioneer Telep. and Teleg. Co.

Jan. 14, 1916.

(27 Commission Leaflets 145.)

In the case of J. W. Bolen vs. Pioneer Telep. and Teleg. Co. (Jan. 14, 1914, C. L. 27, p. 145), the Oklahoma Corporation Commission does not favor accumulating a replacement fund if the property is kept up by replacement. At page 145 the Commission says:

“On this theory the defendant’s engineer attempts to justify the accumulation of a replacement fund to provide new property as referred to at the expiration of its estimated life in years. The record shows in uncontradicted testimony of the Commission’s engineer that such life in years as applied to property of these classes is purely theoretical, and not in any case actual, or so regarded in practice by this Company. This is proved by the evidence that with a total or partial impairment of any property of this class, the same is repaired or replaced, the expense of such repair or replacement being met out of revenues, either current or reserved.

“Mr. Bloom, engineer for the Southwestern Bell Telephone System, in the last hearing before Corporation Com-



mission, admitted on cross-examination that if the Ada plant should always be kept up to its present standard of efficiency and value out of operating revenues that the stated rate for depreciation would be charged off just the same. This statement is too ridiculous to deserve consideration. Where could there be the necessity of a depreciation reserve if the property is kept up to a standard of value at all times out of operating revenues?

THE VERMONT PUBLIC SERVICE COMMISSION.

In re Addison and Panton Telephone and Telegraph Co.

March 14, 1914.

The Vermont Public Service Commission in the case, In Re Addison and Panton Tel. & Tel. Co. et al., (C. L. 29, p. 975) finds that a large depreciation reserve is not necessary. The Commission says:

“The plant, taking into consideration the extent and varying ages of its parts has reached a point where extraordinary reconstruction will not be periodic and reconstruction now is and will continue to be distributed so that the annual charge therefor will be quite regular, and a depreciation percentage quite a little less than that used by the New England company is and will be sufficient.”

IDAHO PUBLIC UTILITIES COMMISSION.

Coeur D’Alene

vs.

Interstate Utilities Co.

April 1, 1916.

In the case of Coeur D’Alene vs. Interstate Utilities Co., April 1, 1916, the Idaho Public Utilities Commission holds that accrued depreciation should not be deducted (P. U. R. 1916C, p. 447). The Commission says:

“The evidence of Mr. Ingersoll in this case shows that the average life of the units of this plant is something over sixteen years, while only three and one-half years have been spent; that the plant is in first-class condition and as good as new, and is capable of rendering 100 per cent efficient service. That being true, we must find under the rule announced by our Supreme Court in the case of Mur-

ray v. Public Utilities Commission, 27 Idaho, 603, P. U. R. 1915F, 436, 150, Pac. 47, that no deduction should be made in this case for accrued depreciation."

# CALIFORNIA R. R. COMMISSION.

In Re Application of James A. Murray et al.

For An Increase in Charges for Water.

18 Commission Leaflets 1002.

March 28, 1913.

In the case of the application of James A. Murray et al. for an increase in the charges of Water furnished by them in the County of San Diego, Cal. (2. Cal. R. R. Com. p. 510), Commissioner Eshelman says:

"In order for rates of a public utility to be just to such a utility they should be sufficient after caring for cost of operation, maintenance and depreciation to yield a reasonable return upon the present fair value of the property devoted to the public use." \* \* \*

\* \* \* "My own view is that the nearest and fairest approximation which may be made to a correct 'value' upon which a public utility shall be allowed to earn is the amount of the investment wisely made and this view is not at all in conflict with the position of the courts in this regard. The elements which we have been directed to consider may all well be secondary evidence of this ultimate fact. However this may be, this Commission in every rate fixing inquiry should give careful consideration, as we have done here, to each of the elements prescribed and should give that weight to each in each case to which we conscientiously think in that case it is entitled, with the hope that thereby we may arrive at such fair value of the property devoted to the public use as is just and fair to the utility and at the same time not oppressive to the consumer."

# ST. LOUIS PUBLIC SERVICE COMMISSION.

In Re Southwestern Telegraph & Telephone Co.  
1913.

The St. Louis Public Service Commission in its valuations for rate-making, did not make deductions for theoretical depreciation: The attitude of the Commission is clearly stated

in the case of the Southwestern Telegraph & Telephone Company. At page 20 the Commission says:

“The fallacy of depreciating from cost (either original or reproduction) in such manner as to assure reasonable returns on a so-called value calculated only on the estimated remainder of life of equipment seems to be based upon a confused idea that an ‘exchange or sale value’ is attainable on equipment in a rate case. As has been stated in other parts of this report the ‘exchange or sale value’ of equipment (except scrap or second-hand value) when once installed, depends upon and is inseparable from the earning power. The regulation of the earning power is the object of the investigation, and therefore the exchange or sale value of the equipment as a whole cannot be known until the proper earnings are determined.

“The aim of regulation should be protection of the consumer and just treatment of the investor. If the investors have placed a certain amount of money in an equipment in the service of the public and are maintaining and are obliged to maintain said equipment at the highest efficiency and are renewing all worn or obsolete parts as soon as they become unfit for service, it would seem that they are performing their full duty to the public and should be allowed to earn returns on the amount invested in the public service for the equipment in the service of the public, unless it can be shown conclusively that the public have paid them back a part of their investment in the shape of clearly defined depreciation charges. Where there has been no regulation in the past and where it can be shown that there was no necessity of establishing a depreciation fund equal to the consumption of estimated life of each item of equipment (see Appendix D, p. 122), deduction for theoretical depreciation in a rate case involving a large ‘piecemeal’ built property, in a normal and efficient state, becomes in fact merely a confiscation of past profits.”



SUPREME COURT OF IDAHO.

Murray v. Public Utility Commission of Idaho.

(Pocatello Case)

July 1, 1915

150 Pac. 47.

The Supreme Court of Idaho says:

(4) "So far as the question of depreciation is concerned, we think deduction should be made only for actual, tangible depreciation, and not for theoretical depreciation, sometimes called 'accrued depreciation.' In other words, if it be demonstrated that the plant is in good operating condition, and giving as good service as a new plant, then the question of depreciation may be entirely disregarded."

SUPREME COURT OF CALIFORNIA.

Sup. Calif.

October 9, 1897.

50 Pac. 633.

In the case of San Diego Water Co. v. City of San Diego (Pac. Vol. 50 p. 636) Judge Garoutte in speaking of value of water works, says:—

"In the first place the evidence developed that there can be no general depreciation of this plant as a whole. There are tunnels, wells, reservoirs, water rights, and real estate, amounting to more than one-half of the valuation of the plant. There is no depreciation of these things. There is no wear and tear; no permanent and gradual destruction by use and age. Most of them stand as everlasting as the hills. The theory of plaintiff in this regard seems to be that the life of a plant of this character may be approximated at 30 years, and that a sinking fund of one-thirtieth of its value should be collected from the rate-payers annually and laid aside to be handed to the stockholders upon the said occasion of its demise, as an alleviating salve to their sorrow. But such a thing is all wrong, for it results in the consumers of water buying the plant and paying for it in annual installments."

## U. S. CIRCUIT COURT W. D. KENTUCKY

Cumberland Telephone and Telegraph Co. v. City of  
Louisville. April 25, 1911.

Cumberland Telephone and Telegraph Co. vs. City of Louisville, April 25, 1911, District Judge Evans rejects accrued depreciation as allowed by the Master (187 Fed. Rep. p. 649) the Court says:

“We have not been able, from anything said by the master, to see what his reasons were for the reduction of 10% for depreciation, as shown in the above extract from his report, particularly as the large sums shown by him to have been expended for maintenance and reconstruction had, as he tells us, put the plant in excellent condition and practically equal to a new one, and had prevented any material change of its value during the 20 months the case was before him. If we eliminate the 10 per cent reduction made by the master, we find that his estimate of the value of the plant would be \$1,506,665.09, which would be \$133.88 in excess of the original cost of the plant, which he found to have been \$1,506,531.21. We think the reduction of 10 per cent under the circumstances, was in large measure an arbitrary reduction in the sense that it was without an adequate basis, in view of the large expenditures made to keep the plant up to the standard.”

\* \* \* \* \*

“As the conclusion of the Master is not clearly stated in simple form, but is somewhat complicated by the qualification of his finding introduced in its last clause, we have concluded to reconcile any differences of opinion developed by the testimony, by finding, as we do, that a reasonable amount to be set apart in this climate for making good depreciation is 7 per cent of the value of the company's plant, exclusive of real estate, working capital, and supplies on hand. We think the testimony clearly leads to the conclusion that the average life of the combined elements which make up the plant is about 14 years, and we shall act upon that theory. The real estate and the working capital of the company are not subject to such depreciation as that now in question. In estimating depreciation we shall, therefore,

reckon it at 7 per cent on \$1,575,000, which we have found to be the value of the destructible parts of the plant. In reaching this conclusion we have borne in mind that the past is fixed. We cannot change it. But, taking the company's plant as it now is and as it probably will become in the future, and remembering that the value of its real estate and working capital will almost certainly not depreciate at all, the problem has been to ascertain what per centum of the earnings of the company will be required to keep what is called its plant always in as good condition as it is now, or as it may become. Of course our estimate could not be based upon the proposition that the per centum set apart to cover depreciation would be deposited in bank or loaned out from year to year so as to accumulate and be on hand at the end of 14 years and be then used to construct an entirely new plant, and so on from period to period. In such a case the public would not only have a service that would progressively grow worse until its operations ceased altogether, but it would thereafter get no service at all until a new plant, replacing the old one, could be completed and put in operation. The question rather has been: What does experience show to be the proper average per cent of annual earnings which the company should expend in order to insure that its plant at the end of 14 years will be as good as it now is, and in the meantime render to the public that good service which its duty to the public requires. The Master, after finding that the cost of the plant was—\$1,506,531.21, finds that its present value is only \$1,355,878.09. If this is correct, it necessarily indicates that in the past enough money has not, from time to time been expended upon reconstruction and reinstatement to make good the depreciation, keep the ever-failing parts of the plant up to the standard by resupplying all values that have been destroyed. And if this is true, the company's inadequate expenditures in the past do not, per se, furnish a safe guide for the ascertainment of what should in the future be set aside for depreciations. But we think the 10 per cent reduction is not sustainable and that it is not consistent with other findings of the Master, and that, if it could have been justified at all, it must have been either upon the ground that 7 per cent had not been expended for keeping the plant in good condition,



or upon the ground that 7 per cent was not sufficient, even if spent, to supply the depreciation. Indeed, if the 10 per cent reduction were proper, it might well be that 8 per cent should annually be set aside for depreciation. In our view, however, 7 per cent of the value of the plant is the proper per cent to allow for depreciation.

“It may not be out of place in this connection to observe that in private business where the owner may fix his own prices for the use of his property, his own interest may compel him to keep the property he hires to others up to a standard that will induce them to use it, but no one can directly compel him to do so.

“It is different with public utility corporations. The owners in such cases have not the absolute and uncontrolled right to fix their own prices for the use by the public of the utilities they furnish. Instead prices may, within certain limits be regulated by public authority, but when that authority attempts to regulate the rates to be charged for the use of the property of another, it must take into consideration and allow what would be a fair amount of the earnings of the property to be devoted to keeping it always up to the proper standard. What interest may force the private owner to do in respect to his own property, the law compels public authority to do when the latter undertakes to fix rates to be charged by public utility corporations.”

Note: This case was reversed by U. S. Supreme Court: *Louisville vs. The Cumberland Telephone and Telegraph Co.*, 32 Sup. Ct. Rep. 741, but no mention is made of the question of depreciation.

#### UNITED STATES DISTRICT COURT.

Bonbright, vs. Geary.

210 Fed. Rep. 52.

(Nov. 19, 1913.)

In the Phoenix case against the Pacific Gas and Electric Co. (1st. Annual Report p. 353) The Arizona Commission excluded the Depreciation reserve from earning value, but the U. S. District Court for the District of Arizona would include this fund in Fair Value of Property. See *Bonbright et. al.*

vs. Geary et. al. in the Pacific Gas and Electric Co. (210 Fed. Rep. p. 52) The Court says:

“This brings us to a peculiar feature of this case. There was on hand in the treasury of the company at the time of the valuation of the plant the sum of \$64,292.67, accumulated for the purpose of meeting the expenses of current repairs and for replacing such parts of the property as had been worn-out and the life of the part ended. The fund has been withheld from the stockholders that it might be used in preserving the plant in good condition and in proper efficiency. This was good business judgment on the part of the officers of the corporation and must be approved. Public service corporations are to be encouraged in maintaining their plants in proper state of efficiency. We are of the opinion that the Corporation Commission was in error in its estimate of depreciation of this plant, and particularly was in error in omitting this reserve fund from its valuation of the plant.”

### KINGS COUNTY LIGHTING CASE.

(1st New York P. S. C.)

This case came before the Commission as case No. 1273. John G. Mayhew and others vs. the Kings County Lighting Co. The opinion was adopted and the order issued Oct. 20, 1911. (2 P. S. C. 1st. N. Y. p. 659). The Commission depreciated the property \$415,198 on a valuation of \$1,902,777, or approximately 21%.

This case was taken to the Appellate Division of the Supreme Court, on a writ of certiorari and decided May 9, 1913.

The Commission's allowance and method of depreciation was passed on and approved by the court. A number of cases were cited in support of depreciation (see p. xl, xli, xlii, and xliii—P. S. C. Vol. IV), but the court ruled against the Commission on a number of other questions. An appeal was taken by the Commission from the order of the Appellate Division of the Supreme Court, to the Court of Appeals, for a review of four questions:

- (1) Allowance for Going Value.

(2) Allowance for paving over mains in value of property used in the public service.

(3) Allowance for paving over mains in ascertaining the capital actually expended.

(4) Inclusion of annual appreciation in value of land, as part of income.

These questions were passed on by the Court of Appeals March 24, 1914. Attention is called to the fact that the question of depreciation was not carried to the Court of Appeals, as the appeal was made by the Commission on other questions, and that therefore the Court of Appeals did not pass on this question. But in passing on the question of paving over mains (see p. xxviii, xxix, P. S. C. 1st. N. Y. Vol. V.) the Court refers to the method of valuation, "Cost of Reproduction less Accrued Depreciation", and says:

"It is merely a rule of convenience and must be applied with reason."

The Court holds that investment made by the company is the fair value. The Court says, in part:

"The relator is entitled to a fair return on its investment, not on improvements made at public expense."

\* \* \* \* \*

"The cost of reproduction, less accrued depreciation rule seems to be the one generally employed in rate cases, but it is merely a rule of convenience and must be applied with reason. On the one hand it should not be so applied as to deprive the corporation of a fair return at *all times*, on the reasonable, proper and necessary *investment made* by it to serve the public, and on the other hand, it should not be so applied as to give the corporation a return on improvements made at the public expense, which in no way increase the cost to it of performing that service."

Some information as to what the Court's view of investment is will be found by reading the discussion of the question of development costs in the same case, where they say:

"Manifestly a rate computed on the cost to-day of reproducing the bare plant would not be fair. Experience is



proverbially expensive. With the advantage of that experience the same or an equally efficient plant could be constructed to-day at a cost much below the *actual* and *necessary investment* of the company in both plant and experience. Indeed, wholly apart from the intangible thing called the going business, the reproductive value to-day of the physical property would not necessarily include the *actual* and *legitimate investment* in tangible property which may have been entirely replaced, not because of depreciation, but to meet advances in mechanical science, new conditions and increasing demands not reasonably to have been foreseen at the start. I am not now speaking of replacements made with fresh capital, about which there is no question in this case. The term 'going value', though not exactly defined, has been used quite generally to comprise the elements not included in the structural value of the property in its present condition. The term is not important. The point is that in some manner and under some appropriate heading a due allowance must be made for the investment in those elements. No inflexible rule will in the long run be just both to the public and the corporation. The right to limit the corporation to a fair return fixed by public authority necessarily involves the correlative right in the corporation to be assured of that fair return during all the time that its capital is employed in the public service. The statute governing this case (Public Service Commission Law, Cons. Laws, ch. 40, section 72) provides:

“ ‘In determining the price to be charged for gas \* \* the commission may consider all facts which in its judgment have any bearing upon a proper determination of the question although not set forth in the complaint and not within the allegations contained therein, with due regard among other things to a reasonable average return upon capital actually expended and to the necessity of making reservations out of income for surplus and contingencies.’ ”

#### NEW YORK COURT.

The People, Ex Rel. Manhattan Railway Co. v. Woodbury.  
(203 N. Y. 231, 96 N. E. 420)

Oct. 17, 1911.

In the case of the People ex rel. Manhattan Railway Company v. Woodbury (203 N. Y. 231, 96 N. E. 420) decided Oct.

17, 1911 (Whitten p. 417) Judge Haight clearly shows that depreciation allowance should not be held in a fund to replace property 40 or 50 years in the future, but is used up from year to year in replacements. At page 239 Judge Haight says:

“The Special Term in this case, however, adopted a plan of amortization upon which an annual sum was authorized to be set apart as a sinking fund, which, by compounding the interest thereon, for a period equal to the life of the structure, tracks, engines, machinery and rolling stock, would at the end of that period create a fund sufficient to replace the property. The difficulty with such handling is that railroad corporations do not reconstruct their railroads and rolling stock in that way. In order to afford proper protection to the public they are required to maintain a high state of efficiency both in roadbed and rolling stock. The relator’s railroad has been in existence already for about thirty years and some portion of its property has already suffered from decay and use to such an extent that portions thereof have to be reconstructed and made new each year. Old ties have to be removed and replaced with new ones; old rails that have become worn and battered have to be removed and their places supplied with new rails and so the work of reconstruction progresses from year to year. It is not the waiting forty or sixty years to reconstruct, during which time the amount set apart as a sinking fund may be doubled many times over by compounding the interest, but it is the annual expenditure for reconstruction which is to be paid for at the time that the construction is made.”

#### UNITED STATES COURT.

Louisville & N. R. Co. v. Railroad Commission of  
Alabama.

(196 Fed. 830, April 5, 1912.)

#### I.

In speaking of rate of return in the Louisville & N. R. Co. v. Railroad Commission of Alabama, 196 Fed. 830, the court quotes from the Railroad Securities Commission as follows, (sec. 30, p. 36):

“We hear much about a reasonable return on capital. A reasonable return is one which under honest accounting and responsible management will attract the amount of investor’s money needed for the development of our railroad facilities. More than this is an unnecessary burden. Less than this means a check to the railroad construction and development of traffic. Where the investment is secure, a reasonable return is a rate which approximates the rate of interest which prevails in other lines of industry. Where the future is uncertain the investor demands, and is justified in demanding, a chance of added profit to compensate for his risk. We cannot secure the immense amount of capital needed unless we make profit and risks commensurate. If rates are going to be reduced whenever dividends exceed current rates of interest, investors will seek other fields where the hazard is less or the opportunity greater. In no event can we expect railroads to be developed merely to pay their owners such a return as they could have obtained by the purchase of investment securities which do not involve the hazards of construction or the risks of operation.”

#### UNITED STATES CIRCUIT COURT.

City of Owensboro v. Cumberland Tel. & Tel. Co.

Dec. 14, 1909.

In the case City of Owensboro v. Cumberland Tel. & Tel. Co. (174 Fed. 747) Dec. 14, 1909. Circuit Judge Lurton says:

“The jurisdiction of the Circuit Court depended upon the presence of a federal question. That is clear enough. Assuming the power of the municipality to regulate the schedule of rates to be charged for the service of public service corporations, it is plain that the rates of such a company may not be reduced to a point below a rate which will pay operating expenses, maintain the plant, and return a fair profit upon the capital actually invested.”



UNITED STATES COURT.

Palatka Waterworks v. City of Palatka.

September 30, 1903.

In the case of Palatka Waterworks v. City of Palatka (127 Fed. 165) Federal Judge Shelby says:

“But the judiciary ought not to interfere with rates established under legislative sanction, where the Legislature has the right to act, unless they are plainly and palpably so unreasonable as to make their enforcement equivalent to depriving the complainant of reasonable returns on its investment:”

UNITED STATES CIRCUIT COURT.

Contra Costa Water Co. v. City of Oakland.

June 29, 1904.

In the case of Contra Costa Water Co. v. City of Oakland (165 Fed. 532) June 29, 1904, Circuit Judge Gilbert says:

“The complainant undoubtedly has the right to receive from water rates an income which will enable it to pay its actual operating expenses, its taxes, its interest on its bonded or other indebtedness so far as that indebtedness represents money properly expended in or upon its property, and to pay a reasonable dividend on its stock so far as the stock represents money actually received and so invested, and in addition thereto to receive a sum sufficient to cover the annual depreciation of its plant.”

UNITED STATES SUPREME COURT.

Kansas City S. R. Co. vs. United States.

(231 U. S. 423; 34 Supreme Court Rep. p. 132.)

Dec. 1, 1911.

In regard to depreciation, Justice Pitney in his opinion, says; (quoting from Union P. R. Co. v. United States, 99 U. S. 402, 25 L. ed. 274).

“It may often be difficult to draw a precise line between expenditures for construction and the ordinary expenditures incident to operating and maintaining the road and works of a railroad company. Theoretically the expenses chargeable to earnings include the general expense of keep-

ing up the organization of the company, and all expenses incurred in operating the works and keeping them in good condition and repair, whilst expenses chargeable to capital include those which are incurred in the original construction of the works, and in subsequent enlargement and improvement thereof."

\* \* \* \* \*

"The theory upon which the Commission has acted in formulating its regulations is fairly stated in its brief herein as follows: 'The abandonment of property incident to grade revision is 'depreciation', and such depreciation is of two kinds,—(1) that which is not replaced in kind, and (2) that which is replaced by improved materials, track, or equipment. If a trunk line of road has a branch extending into a territory not served by its main line, and finding the branch unprofitable, abandons it, taking up the track without constructing any substitute to serve the same territory, the abandoned branch ceases to be an earning instrumentality; the stockholders can thereafter derive no profit from it; it has served its purpose, and only past operations have benefited from it. So far as the profits of past operations have not been distributed to the stockholders, they are represented in the Profit and Loss Account, and therefore such an abandonment or depreciation is properly chargeable to that account unless a special depreciation account has been established in anticipation of such abandonments; and for such an account provision is made in the regulations. The other kind of depreciation is the result of charges attributable to the inadequacy of the existing property to meet the demands of the future. The road or the structures have to be replaced with stronger or more efficient instrumentalities. *Abandonments occasioned by changes of this character are therefore chargeable to future earnings*, for the reason that the improved condition of the road is not only designed to meet the demands of the future, but presumably will result in economies of operation; and so the resulting benefits will be reaped by those who hold the stock of the company in the present and in the future. The railroad company may, if it sees fit, anticipate general depreciations, and make provision for them by establishing a reserve for the purpose; but if no such provision has

been made, the abandonment should be taken care of by charging them to present or future operating expenses. In case, however, the amount is so large that its inclusion in a carrier's operating expenses for a single year would unduly burden the operating expense account for that year, the carrier may, if so authorized, by the Commission, distribute the cost throughout a series of years."

#### UNITED STATES COURT.

Cumberland Tel. & Tel. Co. vs. Railroad Commission of La.

Aug. 24, 1907.

In the case of the Cumberland Tel. & Tel. Co. v. Railroad Commission of Louisiana, Aug. 24, 1907 (156 Fed. 823) at page 833 District Judge Saunders says:

"Under the facts disclosed in this record, I am clearly of the opinion that complainant is entitled to a fair return on its *money actually invested*; that 7 per cent, in a business of the sort carried on by complainant, is a fair and proper return; and that complainant is not now deriving from the rates authorized by Order 488 as much as 7 per cent on its investment in Louisiana."

CUMBERLAND TEL. & TEL. CO. V. CITY OF MEMPHIS.

June 11, 1908.

In the case of Cumberland Tel. & Tel. Co. v. City of Memphis, (183 Fed. 876) District Judge Evans holds that a company should earn a return on the capital invested and evidently in speaking of investment he refers to original investment. He quotes from Beale and Wyman's work on railroad rate regulation as follows:

" 'Sec. 312. The reasonableness of the schedule as a whole depends, as has been seen, upon whether it yields a fair return to the carrier. This is largely a mathematical question. The carrier is entitled first, to pay all expenses, which would include both the actual expenses of operation and also certain annual charges that must be paid before any real profit can be realized. He is entitled, furthermore, to gain a fair profit on his capital invested. The determination of the actual amount of the capital invested may be a matter of some difficulty; once determined, the



rate of profit upon that amount of capital is a question which will be determined, generally speaking, by the ordinary business profit of the time and place. A schedule of rates will be reasonable from the point of view of the carrier if it yields him a net profit equal to that which would be realized, as a business question, from any other business where the capital and the risk were the same.' "

Judge Evans, in passing on this case, says:

"While in terms this language refers to railroad rates, it is not possible that any different rule can grow out of the fact that the ordinance in this case refers to telephone rates only. The holders of stock in the complainant company are entitled to a fair return upon their investment if the company can earn it, but the testimony leaves no doubt that the rates prescribed by the ordinance would leave practically nothing to the stockholders. Under its operation they would lose, as the testimony shows, even the 2, 3, or at best, 4 per cent, per annum profit on \$1,125,000 which has been earned in late years. If too large taxation and other enforced expenditures already properly exacted the city (now the complainant's plant is fully installed) can add the burden of rates fixed arbitrarily that would diminish earnings (though not expenses) as to leave no dividends whatever for stockholders, manifestly the money invested by them would be used for the benefit alone of the people of Memphis, and not at all for the profit of those who made the investment under inducements offered by the city."

#### THE SUPREME COURT OF MASSACHUSETTS.

Fall River Gas Works Company,

vs.

Board of Gas & Elect. Lt. Commrs.

May 23, 1913.

The Supreme Court of Massachusetts in the case of Fall River Gas Works Company v. Board of Gas and Electric Light Commissioners, May 23, 1913, holds that past profits belong to the Company. (102 N. E. 475).

At page 479 the Court says:

"(5) It is the duty of a public service corporation to have its plant large enough to perform the service for

which it was established, and it has a corresponding right to have such plant fairly capitalized. It is its duty to keep up the plant, whether by repairs or otherwise, out of its earnings, and this duty is superior to its right to distribute its earnings to dividends. If the time comes when the plant of the corporation is insufficient for the performance of its corporate duties to the public, then it is subject to the same duty, and is invested with the same right with reference to the additional plant as in the case of the original plant—the duty to increase the plant and the right to capitalize fairly the value of that increase.

“When the corporation has performed all its duties, and by its fortunate situation, good management, or any lawful conduct has remaining a surplus of earnings, it has the right to distribute this surplus among its stockholders in dividends. As between the public and the corporation the earnings belong to the corporation. In performing its full duty to the Public and others it has done what it was chartered to do, and is entitled to the profits of the business for which it was chartered. If there be any reserved power in the charter whereby the profits can be reduced or the charter revoked, of course that power may be invoked if it appear that the charter is too favorable to the corporation. And in the case of a gas company the profits may be reduced by an order lowering the price of gas. If such order seems just and reasonable. R. L. c. 121, 34. The relation between a public service corporation and the public to serve whom it is chartered are not that of a partnership, but rather that of independent contracting parties. The public may demand proper service and with that demand the corporation must comply. The company may demand fair compensation for this service and with that demand the public should comply. The corporation can have no share in the benefit to the public, nor can the public have any share in the net profits available for dividends.

#### SUPREME COURT OF PENNSYLVANIA.

Brymer v. Butler Water Company, 1897.

In the case of *Brymer v. Butler Water Company* (179 Pa. 231; 35 Atl. 249, 251, decided January 4, 1897) (Whitten P. 180). The Supreme Court of Pennsylvania held that addi-

tions made out of surplus were entitled to a fair return, the court says:

“In determining the amount of the investment by the stockholders, it can make no difference that money earned by the corporation, and in a position to be distributed by a dividend among its stockholders, was used to pay for improvements and stock issued in lieu of cash to the stockholders. It is not necessary that the money should first be paid to the stockholder, and then returned by him in payment for new stock issued to him. The net earnings, in equity, belonged to him, and stock issued to him in lieu of the money so used that belonged to him was issued for value, and represents an actual investment by the holder.”

#### UNITED STATES DISTRICT COURT.

Columbus Railway and Light Company vs.  
City of Columbus, 1906.

In the Columbus Railway and Light Company vs. City of Columbus rate case 1906, the Special Master, L. P. Linn, (Circuit Court of the United States, Southern District of Ohio, Eastern Division) in his report to the Court at page 42 says: (Whitten P. 369)

“Both of the above witnesses in testifying as to replacement values arrived at their figures in practically the same way, and by the same method of examination, and practically fixed the replacement value upon the basis of the cost of new machinery fitted to do the work of the complainant, and as a general rule, of the same type, excluding, however, the inoperative and obsolete portion of the Broad Street station.

“Mr. Wigg further estimates that this replacement value should be decreased by about \$240,000 for depreciation in view of the fact that some of the parts appear to have been used for some time, and are not of original value.

“Mr. Barstow places no figure upon the amount he would deduct for such depreciations, nor did he make any specific reduction on that account as he figured entirely upon replacement values.

“While it is undoubtedly true that there would be a difference between the replacement value so fixed if the ma-



chinery were all new, and the valuation of the machinery as depreciated by more or less use, yet in fixing the replacement cost as one of the elements at which to arrive at a fair valuation of the property, neither the cost new, nor the cost as worn is necessarily to be taken as conclusive. Probably a fair statement would be that the physical value of the plant is its value as a performing plant for the purposes for which it is designed."

## REPORT OF THE INVESTIGATION OF THE CHICAGO TELEPHONE CO.

Submitted to  
The Committee on Gas, Oil & Elec. Lt.  
by  
Prof. Edward W. Bemis.

In speaking of depreciation, at page 49, Prof. Bemis says:

"In a new plant which has not yet reached its 'gait' of renewals, a depreciation reserve appears desirable. In the case of a company as old as the Chicago Telephone Company, the time may soon arrive when renewals will take sufficient care of depreciation, as in the case of our older gas companies and railroads.

"A depreciation reserve has thus far been needed by the Chicago Telephone Company."

















